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THE ANTISEPTIC AND DISINFECTANT PROPERTIES OF SOAP.

BY

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SOME months ago I was asked by an operating surgeon whether plain toilet soap might not be a medium in which germs could flourish, and whether therefore it would not be an advantage to use a disinfectant soap. The present investigation was undertaken with a view to answering these questions. I am indebted to Dr. J. M. H. Munro, of Bath, for much valuable assistance in carrying out the experiments and analytical work.

In all cases the organism with which the soaps were tested was the staphylococcus pyogenes aureus, the commonest and most resistant of the pus organisms. The soaps examined were those in use at the Bristol Royal Infirmary at the time, viz.:—(1) Brown Windsor; (2) Izal, containing 4 per cent. izal oil; (3) Toilet carbolic soap; (4) Scrubbing carbolic soap, 10 per cent. carbolic acid; (5) Germicidal soap, Dr. C. T. McClintock's formula, made by Parke, Davis & Co., and containing 2 per cent. of biniodide of mercury; (6) A potash soft soap, containing 20 per cent. of lysol.

With regard to the first question, *viz.*—"Can germs live and multiply on soap?" I may at once say that all soaps possess antiseptic properties in greater or less degree. The following experiments serve to illustrate this fact: (1) Fragments taken from the centre of a cake of soap by means of a sterile cork borer, and incubated in nutrient broth, were found in all cases to be sterile. (2) The hands were washed in hot tap water with each soap; the tablet was placed on a clean surface, and cultures made from the soap at the expiration of three minutes. Those from germicidal and from scrubbing carbolic soap were sterile, and those from izal, toilet carbolic, lysol, and brown Windsor soaps showed growth of various organisms. (3) Small slabs of each soap were moistened and then heavily inoculated with a culture of staphylococcus aureus, and kept in a moist hot chamber for two days. At the expiration of this time the surfaces of the brown Windsor, lysol, and germicidal soaps were sterile, but scrapings from the others all gave rise to growth of the organism first inoculated. On none of the surfaces was there any apparent increase of growth, nor have we found it possible to grow moulds or bacteria on surfaces of soap kept under ordinary conditions. We may conclude, then, that organisms which may get rubbed into a soap in the process of washing hands, clothes, or other surfaces, or which may settle upon soap from the air, are not capable of multiplication thereon. Of the soaps tested, this antiseptic property was most marked in that containing biniodide of mercury.

For practical purposes the second point—namely, the disinfectant value of the soaps—is the more important. To test this the following method was adopted:—A 1 per cent. solution of each soap was made (this representing what we judged to be the strength of the solution which comes into contact with the hands), and to 5 c.c. of this solution there was added a drop of a fresh broth-culture of staphylococcus. The tube was then shaken and allowed to stand for a stated period, and then 5 drops of the mixture were added to a broth tube which was incubated for 48 hours. Obviously, if the antiseptic property of the soap solution were sufficient to kill the organisms in the one drop of broth-culture added, then the tubes inoculated from the mixture

should be sterile; whilst if the solution had no antiseptic power, or if the time allowed were insufficient, then growth would occur.

I do not purpose giving here the details of many experiments extending over several months, but simply to state the result arrived at, viz., that tested in this way it was found that; a 1 per cent. solution of germicidal soap killed staphylococcus aureus in one minute, whilst the same strength of izal, toilet carbolic, scrubbing carbolic, lysol, and brown Windsor soaps failed to do so in ten minutes, half an hour, an hour, or three hours. These solutions were, however, all sterile in from 12 to 14 hours; the exact time in which this result was attained was not observed, nor is it of much importance, for under no conditions would objects be as long as three hours in contact with the soap.

It is a matter of some importance to note that all organisms are not affected alike by soap solutions. Thus the cholera vibrio, the typhoid bacillus, the bacillus coli, and the streptococcus are killed much more quickly, or by very much more diluted solutions, than are the staphylococci. For instance, the bacillus coli is killed by a 2 per cent. solution of plain curd soap in from two to four hours. Our antiseptic precautions are, however, commonly directed against the more resistant organisms, the staphylococci, and, therefore, in testing the germicidal power of a soap it is preferable to work with these organisms. We have tested the germicidal soap with bacillus coli, bacillus typhosus, the cholera bacillus, streptococcus and staphylococcus albus, all of which were killed by admixture with a 1 per cent. solution (equal to biniodide of mercury 1 in 5,000) in one minute.

We conclude, then, from these experiments, that for practical purposes most of the so-called disinfectant soaps have no value, but that in the combination of biniodide of mercury with soap we have a useful means of disinfecting hands, instruments, surfaces, &c.

Although a large number of trials were made, we did not succeed in sterilising our hands by washing with the soap containing biniodide of mercury, although much better results

were obtained with this than with any other variety. This points to the necessity of the operator first washing his hands and then soaking them in an antiseptic solution.

It has been thought that the germicidal action of soaps is due to their alkalinity, especially to the free alkali present. We do not think that this can be the case, for Dr. Munro, from a careful analysis of the samples, finds that the difference in the amount of *free* alkali is infinitesimal. Moreover, we obtained no better results with soaps with high *total* alkalinity than with the others.

Although the exact combinations formed are not known, there are many observations to prove that certain antiseptics when mixed with soap partly lose their power. This is certainly the case with carbolic acid, lysol, and izal. Rideal,[1] who has done much work on this subject, considers that for an antiseptic soap an olein base is the best. Superfatted soaps are in his opinion not so suitable vehicles for antiseptics as soaps with a moderate excess of alkali. The presence of free fat or oil strongly militates against germicidal action, witness Koch's discovery that carbolised oil has no antiseptic value. Acids and free halogens are incompatible, the one being neutralised and the other combining with the fat. Boracic acid is converted into sodium borate, and most mercury salts into insoluble mercuric oleate. Oleates do not generally mix well with soap; fluorides, sulphates, and oxides give better results. Rideal found the double iodide of mercury and potassium to mix well and form a good antiseptic with soap, compatible with strong alkalies and not precipitating albumin. In composition this resembles the soap with which we obtained the best results.

In conclusion, I would point out that the matter is one of considerable importance with regard to nurses, attendants upon sick persons, and the general public, who may be led to think that in using so-called antiseptic soaps they are ensuring efficient disinfection. There is also an economic side of the question, for most of the soaps impregnated with chemical disinfectants are very much more costly than plain soaps, though as disinfectants they are of no greater value.

[1] *San. Rec.*, 1898, xxii. 6.

ESTIMATION OF ALKALINITY.

By Dr. J. M. H. Munro.

Brown Windsor, total alkalinity equal to			9.5	%	Soda (Na_2O)
Izal	,,	,,	9.7	%	,, ,,
Toilet Carbolic	,,	,,	9.6	%	,, ,,
Scrubbing Carbolic	,,	,,	6.82	%	,, ,,
Germicidal	,,	,,	9.9	%	,, ,,
Lysol	,,	,,	7.75	%	,, ,, or
			11.75	%	Potash (K_2O).

These determinations were made with methyl orange as indicator, litmus being of no use with soaps.

The soaps were somewhat drier than when bought, consequently the alkali is higher than would be found in fresh cakes of soap.

Free alkali was greatest in the lysol and the scrubbing carbolic, but there was very little in any of the samples.

ON THE TREATMENT OF SUBACUTE BRONCHITIS.[1]

BY

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The following notes deal with the treatment of ordinary subacute bronchitis, of such cases as come in numbers to the out-patient department of a hospital and are found so frequently in medical practice. They do not touch on questions of complications and sequelæ, or on the methods that may be adopted in severe cases of the disease.

[1] A paper read at a meeting of the Bristol Medico-Chirurgical Society, on February 8th, 1899.

As a result of the causes of bronchitis, upon the nature of which I do not intend to dwell, a hyperæmia and swelling of the mucous membrane lining the bronchial tubes take place. This is succeeded after a variable interval by a secretion of mucus from the epithelium and glands. The mucus, at first very thick and tenacious, becomes more watery and gradually diminishes in amount until health is restored. The course of an attack of bronchitis may be correspondingly divided into a first and second stage, the onset of secretion from the mucous membrane marking the division between them. The inflammation of the bronchial mucous membrane may be associated during all its stages with a greater or less degree of spasm of the underlying bronchial muscles.

The beginning of even a mild attack of bronchitis is generally accompanied by a slight elevation of temperature, the patient has a dry cough, feels "tight" or "raw" within his chest, the breathing is more rapid and is accompanied by a sense of oppression. Physical examination of the lungs in this stage reveals nothing, or perhaps a little sibilus and rhonchus.

Now one finds, from observation of the course of the disease, that, as soon as the mucous membrane begins to secrete, the increased rate of breathing and its accompanying difficulty disappear, and the patient feels better. Our efforts then should be directed towards two ends—the reduction of temperature and the speedy induction of secretion.

The patient should obviously be kept in bed until all fever is gone. Antipyretic drugs are certainly not required in the mild cases here dealt with. All that is needed is some sudorific —for instance, sweet spirit of nitre or acetate of ammonia. The latter is more suited for continuous administration, whereas the former if given in a sufficient dose acts more quickly. Two drachms of nitre, mixed with water immediately before administration, will generally produce perspiration in an adult, and can generally be taken by a child of say ten years; some children, however, vomit a dose greater than one drachm.

The induction of secretion by the inflamed mucous membrane can be most speedily brought about by the administration of alkalies. The results of clinical observation agree with physio-

logical observation in showing that alkalies rapidly produce a secretion from the bronchial mucous membrane, or, if there be already a secretion going on, increase the proportion of water and so render the mucus thinner and more easy of expectoration. Direct antacids are to be avoided, as in large doses they may irritate the stomach. Of indirect antacids the best are citrate of potash and acetate of soda, of which the latter is perhaps the preferable, as sodium salts are less poisonous than potassium ones.

Ipecacuanha has an action on mucous secretions very similar to that of alkalies; but it has the defect that adults, unless cyanosed, are sometimes nauseated by even ten minims of the vinum; so that its use is best confined to children.

Antimony, if given in small doses, say seven and a half minims of the vinum, is a most useful drug at the commencement of an attack of bronchitis. If the patient be feverish it acts as a sudorific, and it diminishes the inflammatory hyperæmia of the bronchial mucous membrane. In large doses antimony has a depressing effect, so that even small ones are best withheld if there be any cardiac weakness. If there be any troublesome cough, ʒ ss. to ʒ j. of syrup of tolu is a useful addition to the above drugs. A mustard leaf, too, will quickly relieve "tightness" or "rawness" of the chest and the accompanying irritating cough.

The last point worthy of mention in the treatment of the first stage of bronchitis is the use of antispasmodics in cases where there is spasm of the bronchial muscles. The inconvenience of such drugs as nitro-glycerine and erythrol tetranitrate is that they are apt to produce headache, and of such drugs as nitrite of sodium that their effect is evanescent. But good results may be obtained by the administration of caffeine, the usefulness of which was advocated by Dr. Skerritt some time ago. The only bad effect I have found is that it occasionally prevents sleep.

The antispasmodics act very imperfectly in relieving spasm of the bronchial muscles due to inflammation of the mucous membrane, until secretion has set in. For instance, whilst a combination of alkalies and caffeine will be found to act very

well, caffeine by itself will fail to relieve. This absence of effect may be due to the fact that in some cases narrowing of the calibre of the bronchial tubes is the result of the swelling of the mucous membrane; but I doubt if this be the full explanation of the fact.

At the commencement, then, of an attack of subacute bronchitis, good results will generally be found to follow from (1) the administration of a sudorific; (2) the administration of an indirect alkali, such as citrate of potash or acetate of soda, in 20 to 30 grain doses every three or four hours, combined with a small dose of antimony if circumstances permit; (3) the application of a mustard leaf if the chest feel "raw"; and (4) a caffeine pill, of say 5 grains, at night if there be any bronchial spasm. One finds that expectoration is soon established and the patient relieved of his symptoms. He passes on into the second stage more quickly than he does if left untreated, or treated, for instance, with carbonate of ammonia.

The further question then presents itself, whether it be possible to diminish the secretion of mucus from the bronchial mucous membrane more quickly than would take place if the patient were left untreated. Patients are often first seen in this stage, especially in hospital practice. In regard to this, I should first say that as long as expectoration is difficult, or if it become so during treatment, the administration of indirect alkalies is indicated.

In this second stage there may be a large or moderate amount of phlegm coughed up. If there be a large amount of secretion, accompanied with not more cough than is sufficient to get rid of it, no drug probably does so much good as ammonium chloride, in, say, 20-grain doses every four hours. It has, unfortunately, an unpleasant taste; but this may be partially corrected by spirit of chloroform and syrup. Sometimes a large amount of secretion coming up freely is accompanied by a troublesome tickling cough, and in such a case phosphate of codeine (which is freely soluble in water) in gr. $\frac{1}{4}$ to $\frac{1}{3}$ doses, every four hours, will be found most effectual.

But as a rule the amount of expectoration is moderate, and one needs drugs which will act as astringents, diminish and

lessen the total secretion from the mucous membrane, whilst preserving the ratio of its constituents one to the other. Many drugs which are employed for this purpose are apt to have a greater effect on the water than on the mucus, the result of which is that the secretion, though less in amount, is more viscid and difficult of expectoration, and so a troublesome cough is set up. Senega and ammonium carbonate are valuable drugs in diminishing bronchial secretion, but occasionally they produce the above-mentioned untoward result. Tincture of Virginian prune, in ʒss. to ʒj. doses, is useful; it reduces the amount of phlegm and also allays any irritating cough. This latter action is probably dependent on the fact that it contains a small amount of hydrocyanic acid. Its astringent effect, however, is not very great. Tincture of hydrastis is a more effectual astringent, in ʒss. to ʒj. doses, and may often with advantage be combined with the former drug. Euphorbia pilulifera has a somewhat limited use. It is useful in diminishing secretion, and has also the advantage of allaying bronchial spasm. Like stramonium and lobelia, it is apt to cause nausea if given in too large a dose. I have used it in spasmodic asthma; but though its effects are often striking, they are liable to wear off in the course of a few weeks. But this is hardly a defect in the case of an attack of bronchitis. It may be given in the form of the tincture, in ♏ 10 to 30 doses.

Yerba santa—the sacred herb of California—has been used by Indians for many years in the treatment of coughs and colds. Though little known in England, experience in its use shows that it is extremely efficacious in the treatment of the second stage of bronchitis; it seems to diminish the watery and mucous constituents of the phlegm proportionately, so that this does not become more difficult of expectoration. The dose is ♏ 15 to 45 of the liquid extract. It forms a somewhat muddy mixture with water, owing to precipitation of the contained gum-resin; but the addition of a little alkali, ammonium carbonate or bicarbonate of soda, for instance, makes it clearer.

Bronchial spasm in the course of the second stage of bronchitis is best treated with caffeine or iodide of potassium.

The above-mentioned drugs, used for the varying conditions which may arise in the course of an attack, will be generally found to give excellent results in ordinary subacute bronchitis.

In the discussion which followed Dr. Edgeworth's paper, Dr. E. H. E. STACK wished to know if Dr. Edgeworth had tried large doses of vinum ipecacuanhæ in cases of bronchitis of the second stage with spasm, as he had found it very useful in doses of about a drachm every hour for a few hours, and then less frequently, without producing either vomiting or depression.—Dr. MARKHAM SKERRITT was glad that Dr. Edgeworth endorsed his recommendation of caffeine in certain conditions of bronchitis. Similarly to its effect in asthma, caffeine relieved the spasmodic element in bronchitis. In the latter disease, the narrowing of tubes, which caused a certain proportion of the dyspnœa and was expressed by the dry *râles* or rhonchi, was due to two factors: first, inflammatory swelling of the lining membrane and adherence of thick mucus to its surface; and, secondly, spasmodic contraction as in true asthma. In bronchitis, caffeine relieved the latter condition, but did not touch the former; and hence the apparent uncertainty of its effect.—Dr. G. PARKER agreed with Dr. Edgeworth as to the great value of vinum antimoniale in vigorous patients, especially children. The syrup of apomorphia and iodide of potassium were also drugs which he had found very useful. The latter, from its power of favouring exudation, had even been recommended for diagnostic purposes in early phthisis, since its use was followed in a day or two by moist sounds where none previously existed, though some lesion was suspected. He asked also for any experience as to the results of giving vinum ipecacuanhæ by a throat spray, instead of in a draught, which had been recently advised.—Dr. WATSON WILLIAMS desired to emphasise the utility of the old-fashioned poultice, not only for the comfort of the patient, but because there is very clear evidence that these applications of moist heat to the surface of the chest might actually shorten and favourably modify the general course of an attack of acute bronchitis. Simple acute bronchitis is almost invariably due to superficial chill, acting reflexly on the bronchi and producing the vascular engorgement, and it was only reasonable to suppose, as experience seemed to prove actually was the case, that the effect of the poulticing was, by reflex action, to lessen the vascular engorgement and relieve any associated bronchial spasm. The sooner this could be done the less pronounced would be all the further changes that ensued on this bronchial vascular engorgement.—Dr. R. ROXBURGH remarked on the great potency of potassium iodide in releasing bronchial spasm, but insisted on large doses as generally requisite. In spasmodic asthma he would give twenty grains, combined with a like quantity of tincture of belladonna and spirit of chloroform, and would repeat the dose in an hour if necessary; while in bronchitis with much spasm he gave rather smaller doses.

SOME GROUPS OF INTERESTING CASES OF ABDOMINAL SURGERY.

BY

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FROM the records of eighty-two abdominal operations [1] which I have performed, I have selected three groups of cases as of special interest and worthy of record.

GROUP A.—Cases of operation for obstruction of the bile ducts by calculi. This group does not include cases in which only cholecystotomy (or removal of stones from the gall-bladder) was performed, but only those in which the ducts were obstructed by stones.

GROUP B.—Ovarian cysts burrowing deeply into the broad ligament, and therefore without a pedicle.

GROUP C.—Cases in which collections of pus within the peritoneal cavity have been evacuated through that cavity, *i.e.*, cases in which the general cavity was not shut off by adhesions.

These are records of all the cases of the kind which have been under my care.[2]

GROUP A.

CASES OF OPERATION FOR OBSTRUCTION OF THE BILE DUCTS BY CALCULI.

Case I.—Stone impacted in the cystic duct, with distension of the gall-bladder. Incision of duct and removal of stone.

Mrs. H. was sent to me by Dr. J. Wilding, in July, 1897, with a swelling in the position of the gall-bladder, and a history of typical attacks of gall-stone colic during the preceding four years. The swelling had been first noticed during the last attack of colic, a month before I saw her. There was a smooth, hard swelling, 3 in. by 3 in.

[1] These do not include hernia, or operations on the kidney from the loin, or vaginal hysterectomy, but include all abscesses arising in connection with disease of the appendix.

[2] This paper was written in March. I have had several cases of this kind since then.

in size, exactly in the usual position of a distended gall-bladder. There was no jaundice. I advised operation, but she was not able to come into the hospital until November 23rd. In the interval she had had unusual freedom from attacks of colic, but she had one lasting twenty-four hours, and followed by jaundice. The condition of the gall-bladder swelling was the same as in July.

I operated on November 26th. The gall-bladder was greatly distended with mucus, and from it I removed three gall-stones, the size of marbles. I then felt another stone just beyond the neck of the gall-bladder in the cystic duct, but neither by manipulation with one finger in the gall-bladder and one finger outside the duct, nor by efforts to drag the stone back into the gall-bladder by forceps, could I remove it. I therefore made an incision an inch long into the cystic duct on to the stone and removed it, and then sewed up the opening with a double row of Lembert's stitches of fine silk, the second row invaginating the first. Owing to the depth at which the duct lay the manipulation was difficult. The parts were of course carefully isolated with sponges, but no bile was seen, and there appeared to be no extravasation of mucoid fluid from the opened duct. I closed the incision in the gall-bladder except at one spot which I left open for a drainage tube. One end of a strand of iodoform gauze was placed below the sutured duct, and the other end brought out at the lower angle of the wound, which was shut off by suturing the parietal peritoneum and abdominal aponeurosis across the wound. In this way the opening in the abdominal wall was divided into a lower smaller one, through which the gauze protruded, and a larger upper one, and to the edges of this, the gall-bladder was united, with a small drainage tube passed into the interior. The skin was then sutured across between the openings, and then the end of the drainage tube and the strand of gauze buried in a mass of cyanide gauze and wood wool. The gauze plug was removed the day after the operation, but the gall-bladder drainage tube was retained some days longer. On December 4th bile was found discharging through the opening into the gall-bladder where the drainage tube had been. This rapidly closed, and the patient went out quite well.

After the cystic duct had become obstructed, and the gall-bladder distended with mucus, an attack of colic occurred and was followed by slight jaundice. Where did the gall-stone come from which thus temporarily obstructed the common duct? The gall-bladder was at that time shut off by the stone impacted in the cystic duct. Possibly there was more than one stone impacted in the cystic duct, and one of them moved on down the common duct.

Case II.—Obstruction of cystic and common duct by calculi calculi removed from the gall-bladder, and a floating stone crushed in the common duct.

S.P., aged 39, was sent to me by Dr. J. Young, on January 25th, 1898. For six months she had suffered from attacks of pain in the right hypochondrium every three weeks. They usually lasted about twenty minutes, but she had been in constant pain in the same region for a fortnight before admission. There had never been any vomiting. On admission to the hospital she was very slightly jaundiced, and a small round swelling could be detected in the position of the gall-bladder. The jaundice became much more marked directly after admission, but the pain disappeared until February 12th and then

returned. The swelling in the position of the gall-bladder could not always be felt. I operated on February 17th and found the gall-bladder, the size of a hen's egg, full of mucus and containing ten small gall-stones, which I removed. I also discovered a stone which darted up and down in a dilated common duct. Owing to the great difficulty in reaching the duct in this case and the way in which the stone lay on the under surface of the lesser omentum, I was obliged to crush it between my thumb and finger rather than remove it by incision. I did not find any stone in the cystic duct. After the operation, bile discharged, from the gall-bladder drainage tube and the jaundice gradually passed off. The opening into the gall-bladder closed before her discharge, on March 21st. It re-opened, however, after her discharge from the hospital, and a little bile escaped daily. She was re-admitted at the end of April, and then the fistula closed in a week. I saw her again this month (February, 1899), and found that she had remained free from jaundice and abdominal pain, and the scar had remained sound. When she came round from the anæsthetic after the operation we found she had left hemiplegia. From this the leg slowly recovered, but the hand remains useless. Its cause was uncertain—possibly some cerebral hemorrhage during the condition of cerebral congestion caused by the ether. My dresser, Mr. Johnson, has discovered records of two other cases of hemiplegia coming on after administration of ether.

Case III.—Obstruction of common duct by floating gall-stones: anastomosis between gall-bladder and duodenum.

Miss P., aged 62, was seen, in consultation with Dr. Emily Eberle, in August last, with a view to performing cholecystenterostomy. In the previous autumn the patient began to suffer from attacks of gall-stone colic, and she had been subject to the febrile attacks resembling ague, which are often present with impaction of a calculus in one of the bile ducts. In the early autumn Dr. Eberle had discovered a gall-stone in the motions. Before the end of 1897 Dr. Eberle ceased to attend her, and in the spring of 1898 she got much worse, jaundice became very marked, and an operation was performed. Many adhesions were found around the gall-bladder, some stones were removed from its interior, but the cause of the obstruction in the common duct was not apparent, and as she was too ill for cholecystenterostomy to be performed, a biliary fistula was established, and the bile continued to discharge externally. When she had recovered from this operation, Dr. Eberle again became her medical attendant, and fearing that the continued loss of bile was preventing her complete restoration to health, asked me to see her with a view to making a communication between the gall-bladder and the intestine, and closing the external biliary fistula, from which ten to twelve ounces of bile discharged every twenty-four hours. Diarrhœa and flatulence had been relieved by the administration of ox gall by the mouth. The patient was anxious to get rid of the annoyance of the fistula. I operated on August 17th, assisted by Dr. Eberle. The bile was so viscid I could not draw it off with the aspirating cannula passed into the fistula, and I therefore plugged the latter with iodoform gauze before making the incision. There were so many adhesions in the region of the gall-bladder and bile ducts, it took some time to reach them. On passing my finger deeply behind the duodenum, I felt in the region of the head of the pancreas a large round hard body the size of a marble. When

palpating it, it slipped upwards in what was evidently a greatly dilated common duct. Dr. Eberle then grasped the duct below the stone, and I did the same above it, thus fixing it, and I was just about to incise the duct over it, when I thought it lay rather too much on the under surface of the lesser omentum, and I released my grip in order to shift it further round, when it disappeared, and I was never again able to find it; but in a prolonged search for it, I found another stone half the size, also close to the head of the pancreas. This one I could easily float upwards in the duct, and could readily have removed, but I considered it was not worth the risk of incising the duct unless the larger stone could also be found and removed. I discovered another calculus the size of a small shot, fixed, very high up near the liver. Failing to remove the cause of the obstruction, I detached the gall-bladder from the abdominal wall, and united it with a Murphy button to the duodenum. The button was not the ordinary one used for the purpose, for the half which lay in the duodenum was distinctly larger than the gall-bladder half, so that the button, when detached, could not pass into the gall-bladder instead of the duodenum. I drained the region of the anastomosis with a rubber tube and a strand of iodoform gauze, and united the incision in the abdominal wound around their protruding ends. There was only a moderate degree of prostration after the operation. She was fed by the rectum only for the first twenty-four hours, and the gauze drain was removed the day after the operation. Her progress was quite satisfactory until August 30th, when she had a severe attack of hæmatemesis, but no melæna. After this she slowly regained strength, and the drainage-tube opening was healed during the following month. The button was passed ten weeks after the operation. The old fistula-opening has discharged, every now and again, a few drops of watery fluid. She gained flesh and was able to walk a mile and a half, and has had none of the old attacks of colic or pyrexia until the beginning of this year, when she had some return of the old pain. Since the operation in August, she has only had a slight conjunctival tint of jaundice for a few days in January. But serious valvular disease of the heart has developed, and her condition in January was very critical.[1]

The fourth case of this series was published in the *Bristol Medico-Chirurgical Journal* for 1897.[2] I removed a large stone which was floating freely in the common duct, and had caused a very uncommon form of pyrexia. A very interesting series of operations on the bile-ducts has lately been published by Mr. Mayo Robson[3]; and as the surgery of the bile-ducts is considered in such an exhaustive manner in Mr. Mayo Robson's paper, I would refer the reader of these records to it for further information on the subject. The difficulty in dealing with the ducts, lying as they do at a considerable depth and amongst

[1] This patient died from heart disease on May 17th, and at the necropsy I found a stone the size of a small marble in an enormously-dilated common duct.

[2] xv. 317. [3] *Brit. M. J.*, 1898, ii. 1404.

important structures, is often very great. I have not thought it safe to close the abdominal cavity without any drain, after incision and suture of the duct, and hence in Case I. the difficulty arose as to how the gall-bladder should be drained of mucus, and the peritoneal cavity in the neighbourhood of the duct drained at the same time through the same opening in the abdominal wall. I might have drained the gall-bladder through the abdominal wound, and the region of the sutured duct by means of Rutherford Morison's method of drainage through a lumbar incision. But I do not like to make this additional lumbar wound if it can be avoided, and the plan which I adopted answered very well.

The difficulty of finding floating stones in the common duct is well shown in the last case. The patient had been previously operated on by another surgeon, and no stone discovered; and after finding the largest stone, I lost it, and could not find it again. What happened must remain uncertain. I am inclined to think it darted up into some dilated and pouched portion of the hepatic duct, and there remained. I manipulated the common duct, as one would milk a cow, and had the patient's shoulder raised to a considerable extent to try and dislodge it.

GROUP B.

Cases of Ovarian Tumours burrowing deeply into the Broad Ligament.

Two of the cases may be called broad ligament cysts, for they lay wholly within the broad ligament; in the other case the cyst reached to the costal margin, and yet its base extended deeply into the broad ligament up to the side of the uterus. Parovarian cysts of course start in the broad ligament, but do not always burrow deeply between its layers. Paroöphoritic cysts—*i.e.*, cysts starting in the hilum of the ovary, and often containing much watery growth—do commonly burrow between its layers. So also would cysts arising in the upper segment of the canal of Gärtner. The exact origin of the cysts in these cases which I record I do not know.

The removal of an ovarian cyst, large enough to ascend into the abdomen, with a distinct pedicle and with no very important or numerous adhesions, is about as simple and easy an abdominal operation as we could well have to perform. But when there is no pedicle, when the cyst lies deeply in the pelvis, and we have to open up the broad ligament and shell it out, with the danger of injury to the ureter lying just beneath, it becomes a much more difficult and anxious proceeding.

CASE I.—Mrs. S., aged 52, came under my care in the General Hospital in March, 1894, for a swelling in the lower abdomen, which she had noticed for three months. A definite swelling was visible in the centre of the lower abdomen, extending rather more to the right than the left, and from just above the pelvis to two inches from the umbilicus. It was dull all over, with resonant intestine around, softly fluctuating, and could be moved laterally with considerable freedom. Nothing abnormal could be felt *per vaginam* until the tumour was pressed down, and then it could be felt bulging at the right of the cervix.

I operated on April 2nd, and found a cyst the size of a young child's head, covered by a thin layer of peritoneum, which was reflected on the tumour from the iliac fossa, and the cyst also extended deeply into the right broad ligament, and the uterus was pushed by it over to the left side of the pelvis. It lay in contact with the right side of the uterus, and there was no pedicle. It was so soft I could not satisfactorily evacuate the clear watery fluid it contained with the ovariotomy trocar and cannula; but by pushing it well forwards against the anterior abdominal wall, I was able to guide the fluid out of the incision in the latter without any passing into the peritoneal cavity. Before the cyst was emptied, a large cyst within the one first opened had to be incised. I then found that the cyst extended very deeply into the broad ligament, and in enucleating it the ureter was exposed to view, running beneath the cyst. I divided the peritoneum over the cyst, and shelled it out, clamping and dividing strands of tissue here and there, and ligating the tissue between it and the fundus of the uterus in two places. The ovarian artery and a large vein passing into the tumour were recognised and tied separately. The uterine appendages on the left side were all buried in old adhesions. The cavity from which the cyst had been removed in the broad ligament was drained by a glass tube for several days. She made an uneventful recovery, and was discharged at the end of April. In this case, the bilocular nature of the cyst is of interest. Most cysts of the broad ligament, parovarian, and paroöphoritic cysts are unilocular.

CASE II.—E. H., aged 43, was sent to me in March, 1898, by Dr. L. B. Trotter, of Coleford, with a swelling in the abdomen, of nine months' duration She had a good deal of pain in the position of the swelling at times, and some frequency of micturition.

On admission, on March 20th, there was visible fulness in the right lower abdomen, and a very soft fluctuating swelling could be felt beneath the lower part of both recti, but projecting more to the right

than the left. No definite outline could be made out, and the limits of the swelling could only be defined by the fluctuation wave. Nothing abnormal was made out on vaginal examination. I operated on April 5th, and found a very soft cyst in the right broad ligament. It raised the peritoneum from the right iliac fossa, so that the cyst lay over the iliac vessels and in contact with the bladder and the side of the uterus. The only place where it was free was on its posterior aspect. It was too soft to puncture with the ovariotomy trocar, so I wedged a sponge between the cyst and the abdominal wall, turned the patient over on her side, and evacuated straw-colored serous fluid from the cyst by incision. Through the opening thus made I was able to separate the cyst-wall from its capsule of peritoneum. At the upper part the cyst-wall was very thin, but shelled out with ease, after division of some strands of connective tissue containing vessels. At its lower part the cyst was much thicker, and it extended deeply, so that I felt there was considerable risk of wounding the ureter in its removal; but by clamping and dividing various strands of tissue, and peeling the cyst away where I could, I enucleated it from the broad ligament. The cyst was unilocular, and the size of a large cocoa-nut. There was no trace of the ovary attached to it. I drained the cavity left in the broad ligament for twenty-four hours. She made an uninterrupted convalescence, and went home early in May.

Case III.—N. I., aged 40, was sent to me by Mr. J. C. Smyth, of Glastonbury, for ovariotomy, in January, 1899. Her friends had first noticed an increase in size of the abdomen early last summer, and Mr. Smyth had been called in to see her a fortnight before she came under my care, and had then discovered the abdominal tumour. She had had a good deal of abdominal pain at times. There was a fairly firm, smooth tumour, which extended from the pubes to the left costal margin. It occupied more of the right half of the abdomen than the left. There were no bosses on the surface, and no thrill on percussion, or distinct fluctuation on palpation.

I operated on January 28th. On plunging the ovariotomy trocar into the cyst, nothing came through it, but thick jelly-like material welled out round it. I dragged the cyst forwards with large forceps, and my assistant kept the cyst pushed well forward against the anterior abdominal wall. I then made a free incision into the cyst (after enlarging the incision in the abdominal wall) and drew out a large mass of this viscid material. After partly emptying the cyst in this way, I made the incision into it large enough to get my hand in, and bailed out more of the jelly from the large cyst, and numerous secondary cysts which I broke into with my fingers. In this way I was able to deliver the empty cyst, except at its base. I found it had no pedicle, but burrowed to some depth into the right broad ligament, and lay by the side of the uterus. There were no adhesions, but the peritoneum of the right iliac fossa was raised by it. I got a ligature around the reflection of peritoneum from the iliac fossa into the cyst, which contained the ovarian vessels, and another around the Fallopian tube just by the side of the uterus, and after dividing the peritoneum between these two points, enucleated the cyst out of the broad ligament, dividing strands of connective tissue here and there, and clamping and dividing some vessels. The iliac vessels were freely exposed, but I did not see or feel the ureter. A small cyst was also removed from the region of the left ovary. I washed out the abdomen with sterilised saline solution, but I do not think any of the colloid material had entered it. I drained the cavity left in the right broad

ligament for forty-eight hours. There was a good deal of sickness and flatulent distension of the abdomen for some days after the operation, and the urine had to be drawn off for some considerable time.

The contents of this cyst were more like those of an ovarian adenoma; but the structure of the cyst was not like that form of ovarian tumour.

It is interesting to note that in none of these cases could the cyst be evacuated by the ovariotomy trocar and cannula in the ordinary manner, but the evacuation of their contents was effected by incision without fouling the general peritoneal cavity and setting up peritonitis. In the first two cases the cysts were too soft, and in the third the contents were too viscid, for their evacuation in the ordinary manner.

GROUP C.

Cases in which Collections of Pus within the Peritoneal Cavity have been Evacuated through that Cavity.

When the parietal peritoneum becomes firmly adherent to the wall of an appendicitis abscess, and we can open straight into the collection of pus without implicating the general peritoneal cavity, the proceeding is not as a rule a difficult one. There may be uncertainty as to whether we have an adherent coil of bowel beneath the adherent peritoneum, and therefore we have to work very cautiously, and work through the thickened tissue mainly with the point of a blunt instrument such as a director; but when we have first to open up the general peritoneal cavity and then evacuate offensive pus through it, it becomes a more risky and difficult business. And yet we are certainly not wise in leaving pus shut up amongst adherent coils of bowel, even though adhesion may not have fixed them to the peritoneum of the anterior abdominal wall. Too often such collections of pus leak into the general peritoneal cavity before these adhesions form, and fatal peritonitis is set up. If we carefully pack around the adherent coils forming the abscess-wall with iodoform gauze, or sponges before we break down the adhesion of the coils and liberate the pus, we shall effectually prevent contamination of the general cavity of the peritoneum at the

time of operation; and by the retention of a plug of gauze for twenty-four to forty-eight hours after, we can drain the abscess sac with equal safety. Some of the cases in this series show that even if pus has been freely discharged into the peritoneal cavity from the rupture of an intra-abdominal abscess, free flushing and drainage may prevent the onset of peritonitis.

In dealing with these abscesses, the method which I adopt is as follows. Directly the mass of adherent bowel around the pus is exposed, on opening the peritoneal cavity over it, it is very carefully isolated by packing around it with iodoform gauze or sponges. I then look for a spot on the surface of the mass where I think I can break through the adhesions between the coils and reach the interior; here I gently work with the end of a director and my finger-tip. Presently a little, usually offensive, pus escapes, and is quickly caught on a sponge. The opening is enlarged by the finger, the pus caught on sponges as it wells up, and then when it ceases to flow the cavity is plugged with a strand of iodoform gauze so that no pus can escape. The surrounding mass of gauze, or the sponges, are then removed, and the neighbouring coils examined, by inspection and gentle sponging, to see if any pus has found its way amongst them. In my own cases, the gauze packing has always prevented this. If a little pus had escaped amongst the coils of bowel, it would be sponged up; if anything like free escape of pus into the general peritoneal cavity had occurred, it would be flushed out with boiled saline solution. A fresh strand of gauze is then packed around the mass, and the end brought out of the incision in the abdominal wall. The piece of gauze within the abscess cavity is then replaced by a large glass drainage tube, in which lies a strand of iodoform gauze to act by capillary attraction. The general peritoneal cavity is thus shut off while the abscess sac is drained. Sometimes I have used the wick drain, introduced by Morris of New York, instead of the glass one. This consists of a strand of gauze, surrounded by green protective, just as the tobacco is surrounded by the paper in a cigarette. The gauze acts as a capillary drain, and the green protective prevents adhesion to

surrounding tissues. Usually an anæsthetic is required for a few minutes when the gauze is removed from around the suppurating mass, forty-eight hours after the operation. By this time, and probably sooner, protective adhesions will have shut off the general peritoneal cavity around the gauze-plugging. The adhesion of the gauze to the peritoneum is so firm that it often requires some force to dislodge it, and hence the need for an anæsthetic.

Only a certain number of the cases in this group have been cases of appendicitis. Two are cases of suppuration from perforation of the bowel, one in a malignant growth and one from a fish-bone. One is a very interesting case of abscess in the mesentery from localised necrosis. Fæcal matter, as well as pus, was flushed out of the general peritoneal cavity in one case, which recovered without peritonitis.

The cases in this group are too numerous to give their histories, and I have had to be content with a brief outline of the operations and results. In the first seven cases, the abscess probably arose in connection with disease of the appendix. In most of the cases, the discovery of the perforated appendix, or an appendix concretion in the pus, placed their origin beyond doubt, and the origin of the others from the appendix was extremely probable.

Case I.—W., aged 22. There was a collection of pus shut in by adherent coils around a sloughing appendix. On opening the peritoneal cavity, a mass of adherent intestine was found lying just internal to, and slightly below, the cæcum, which was adherent to it, and overlapped it to a slight extent. There were no adhesions to the anterior abdominal wall. I carefully packed sponges around it in all directions. At first I did not see where I could break into the mass and evacuate the pus, but what looked like the junction of ileum and cæcum (so smooth was it) turned out, on further examination, to be only an adhesion, and by breaking it down I liberated a few drops of pus. The pus was at once sponged up, and I then gradually broke into the abscess cavity through the adhesions. The cavity was the size of a hen's egg, and I did not feel the appendix within it, but I avoided much manipulation for fear of breaking down adhesions on the under aspect of the adherent coils, and thus allowing pus to escape into the general peritoneal cavity. After removing the gauze around the mass, I plugged the abscess with a strand of iodoform gauze, and brought the end out through the incision in the abdominal wall. I also packed around this central strand of gauze with other strands, so as to shut off the peritoneal cavity, but they did not penetrate into the abscess sac. These were removed in forty-eight hours. On the fifth day after the operation a slough of the appendix an inch long was dis-

charged from the abscess cavity, and the patient went out quite well a month later. She never had any signs of general peritonitis.

Case II.—Wm. T., aged 8. In this case, the mass of adherent coils around the collection of pus was adherent at one place to the peritoneum of the anterior abdominal wall; but I had to open the peritoneal cavity just above, in order to see what condition I had to deal with, and in separating the adherent parietal peritoneum off the mass a little pus exuded. This was quickly sponged up, and after the opening had been enlarged with sinus forceps, I passed my finger in, the pus as it escaped being quickly absorbed by masses of gauze placed around. I did not feel the appendix, but the position of the abscess—at McBurney's point—left little doubt as to its origin. The abscess-sac was drained, and the general peritoneal cavity shut off as in the last case, with the same successful result.

Case III.—C., boy, aged 16. In this case, on opening the peritoneal cavity, I found the mass on the outer aspect of the middle of the ascending colon, continuous with the lower end of the kidney. I plugged all round it with a quantity of iodoform gauze, and then separated adhesions, and evacuated some offensive pus and a typical appendix concretion. Before removing the temporary plugging, I inserted a strand of gauze into the abscess sac, and brought the end out through the incision in the abdominal wall. The temporary plug was then replaced by two strands of gauze, one placed on each side of the strand lying in the abscess sac, and the ends brought out through the abdominal incision. The temperature fell to normal after the operation, and there were no signs of general peritonitis; and in a month's time the boy's general condition was good, and only a sinus remained; but later on fresh abscesses (extra-peritoneal) formed and were opened, sinuses persisted, and the boy died nearly a year after the first operation. The parents refused to take the risk of an operation for removal of the diseased appendix.

The question has been much discussed during the last few years (especially by American surgeons) whether, in these cases of localised suppuration around an appendix, we should break down those adhesions on which the safety of the peritoneal cavity depends and remove the diseased part. The feeling of most surgeons, and certainly my own, is that the risk of setting up general peritonitis is too great. If the appendix is found lying loosely in the abscess sac, we should, I think, undoubtedly remove it; but we are not justified, I consider, in breaking down the adhesions between adherent coils of bowel which shut off the infected area, in order to remove it. Perhaps if we did remove the appendix in all these cases we might less often have troublesome sinuses after evacuation of an appendix abscess, but we might, I think, sacrifice the life of the patient; and these persistent sinuses are not very frequent, and only very rarely do they lead to any serious result. In the case which I now

record, I advised that the appendix should be removed, when it became evident that it would cause chronic trouble, even though in the presence of septic sinuses the operation involved some risk.

CASE IV.—W. H. O., aged 10. In this case the collection of pus was situated in almost the same situation as in the last—outside the middle of the ascending colon, between the colon and the parietes; but it extended from this upwards, and was more difficult to reach. I was able to plug below it with a sponge packed in at the outer side of the cæcum, but could not push gauze or a sponge in above it, under the liver. The ascending colon formed a barrier to the entrance of pus into the general peritoneal cavity on the inner side. I turned the boy well over on his right side, and then, by separating adhesions, evacuated offensive pus. Nothing was seen of the appendix; but I had little doubt the abscess arose in connection with it, though not in the usual position for an appendix abscess. After thoroughly sponging out the abscess sac, I sponged out the fossa under the liver above the abscess sac, but found no pus there. The abscess sac was drained by means of Morris's wick drain, already described. Although the pus was evacuated, the boy's general condition got worse, and he died two days after the operation. At the necropsy, it was found that the abscess cavity had not only formed a considerable swelling within the peritoneal cavity by adhesions between the outer aspect of the ascending colon and the parietes, but had also eroded the peritoneum and the anterior aspect of the right kidney. The perforated tip of the appendix lay in the abscess sac. The abscess was, of course, primarily intra-peritoneal, and yet it had eroded the peritoneum over the kidney, and had not found an exit into the general peritoneal cavity, so great is the protecting action of adhesions within the peritoneal cavity in these cases. The necropsy showed that the evacuation of the pus had been accomplished without any infection of the general peritoneal cavity, for there were no signs of any general peritonitis.

I have operated on four cases of appendix abscess situated outside the middle of the ascending colon. Two are here recorded. In the other two the general peritoneal cavity had been shut off by adhesions at the time of operating, and therefore they do not come into this group. In one of these I found an appendix concretion in the abscess; in the other only the similarity in position, and the absence of any other obvious cause, led me to diagnose perforation of the appendix as the almost certain origin. No doubt in all the appendix lay directed upwards under the ascending colon (as was demonstrated in one of the cases), and the tip perforated in that position.

CASE V.—Boy, aged 16. A collection of pus was shut in by adherent coils of bowel, and omentum around a perforated appendix.

There were no adhesions to the abdominal wall. When the peritoneal cavity was opened, pus was found leaking out through a perforation in the omentum. The peritoneal cavity was washed out, but death from peritonitis occurred ten hours later. The necropsy showed that the peritonitis must have started before operation, as it was advanced in parts of the abdomen away from the focus of suppuration. An earlier operation would probably have saved the boy's life.

Case VI.—A. B., aged 20. This was a case of large pelvic abscess, of doubtful origin; but I have included it amongst the appendicitis cases, as most probably it was due to a sloughed appendix, hanging over towards the pelvis. I have record of one fatal case of peritonitis from perforation of the appendix, in which the cavity of the true pelvis was full of pus, and there was no pus around the appendix; and yet a perforation of the appendix in the iliac fossa was clearly the cause of the peritonitis, for an appendix concretion was found lying there. In other cases we find the appendix hanging over the pelvic brim, with the perforated tip in the pelvic cavity. I believe the case to have been one of this kind, in which probably not only was the appendix perforated, but much of it had sloughed off. The patient presented a definite swelling just below McBurney's point, and a large pelvic swelling bulging into the rectum. I opened the abdomen over the abdominal mass, and found that it consisted of a mass of adherent bowel and omentum, which was only adherent at one or two spots to the anterior abdominal wall. I packed around the mass with iodoform gauze, and then broke down adhesions with my fingers, and tied and divided portions of adherent omentum, until the lower extremity of the cæcum was well exposed, but I could not find the appendix. While doing this, a little pus exuded from amongst the adherent coils. I then broke down the adhesion of the bowels on the deeper aspect of the mass, and thus worked into Douglas's pouch, and then a very free discharge of horribly offensive pus took place, and I found Douglas's pouch had been converted into a large abscess cavity, pushing forward the uterus. Before opening this up, the gauze packing was removed, as it was evidently impossible to protect the general peritoneal cavity from infection by its retention. I found the right Fallopian tube and ovary greatly swollen, and suspecting that the abscess might have arisen in a ruptured pyosalpinx, I removed them; but subsequent examination showed that although the tube contained lymph, its inflammatory condition was probably due to its having formed part of the wall of the abscess sac. No trace of the appendix could be discovered, but I thought there was an ulcerated area where it might have sloughed off. I very thoroughly flushed the whole peritoneal cavity with boiled saline solution, and placed a glass drainage tube in the pelvis, with a strand of iodoform gauze within it for a capillary drainage. The general condition improved very much after the operation, and the abscess sac continued to drain well; but another intra-abdominal abscess formed, a fortnight after the operation, on the opposite side of the abdomen above the level of the umbilicus, and when the pus was evacuated the knot of a sulpho-chromic catgut ligature came away in it, showing that it arose in connection with the primary seat of suppuration. After the opening of the secondary abscess, she made a satisfactory recovery. Although the general peritoneal cavity was infected by the offensive pus at the time of the first operation, yet by thorough flushing the onset of general peritonitis was prevented.

Case VII.—Another case belonging to this group has already been published,[1] as one of recovery after draining a pyæmic abscess of the liver. A collection of pus was shut up around the diseased appendix, but there were no adhesions to the anterior abdominal wall. I removed the appendix, flushed out and drained the peritoneal cavity, and the boy did not develop any signs of peritonitis, and after evacuation of the pyæmic abscess in the liver, recovered.

Case VIII.—Evacuation of pus from the general peritoneal cavity, and drainage of ruptured pelvic abscess: recovery without peritonitis.

S. E., aged 36. On opening the peritoneal cavity just above the pubes, several ounces of very offensive pus escaped, and I found a collection of pus shut up in the true pelvis by adhesion over the brim, and at one spot this had given way and the pus leaked out. The rupture through the adhesion was enlarged by my finger and the pus freely evacuated, the general peritoneal cavity well flushed with boracic lotion, and the abscess drained with a glass drainage tube, within and around which I placed strands of iodoform gauze. The cause of the abscess was probably suppuration in a Fallopian tube, as she had an offensive vaginal discharge. The rupture probably occurred two hours before operation, when she was seized with very severe pain in the abdomen. The glass drainage tube and the gauze-plugging around were removed in twenty-four hours after the operation and a rubber tube substituted. As the discharge remained offensive, I had the cavity frequently irrigated, and then it became sweet. The sinus persisted for several months.

Case IX.—Abscess in the mesentery: evacuation through peritoneal cavity without infection of peritoneum: death nine days after operation, from pneumonia.

J. P., aged 50. In this case there was a large swelling just below the umbilicus, with high temperature. The patient had been a heavy drinker. That there was an intra-peritoneal abscess seemed certain, but the cause was very obscure. On opening the abdomen I found a hard mass, the size of an orange, lying over the lumbar spine. It was covered by adherent coils of small intestine; but the great omentum passed over it without adhering to it. I very thoroughly packed all round the mass with iodoform gauze, and then broke down an adhesion between the adherent coils on the upper part, and thick offensive pus came out and was rapidly sponged up. My finger passed into a cavity amongst the adherent coils just like an abscess cavity from perforation of the appendix. After sponging up all the pus as it exuded, I plugged the cavity with gauze, and then withdrew the surrounding mass of gauze and passed small sponges on holders in various directions into the peritoneal cavity, but found no pus there. The strand of gauze which had been inserted into the abscess sac was then replaced by a large glass drainage tube, and around this, outside the cavity, was placed a mass of gauze to shut off the general peritoneal cavity while the abscess drained. It was removed under chloroform in forty-eight

[1] *Bristol M.-Chir. J.*, 1897, xv. 323.

hours. The progress of the patient, so far as his abdominal condition was concerned, was most satisfactory; but he got lobar pneumonia, and died nine days after operation. At the necropsy the abscess cavity was found almost obliterated, and there was no trace of general peritonitis. It evidently had arisen in the mesentery, and probably from a limited necrosis, as a necrotic area was found in that structure. The appendix was normal.

Case X.—Collection of pus beneath adherent cysts in the pelvis: evacuation through peritoneal cavity without general infection of peritoneum.

E. S., aged 25. On opening the peritoneal cavity, I found a mass of adherent omentum and bowel around a small cyst of the left ovary, and a mass of small cysts firmly adherent in Douglas's pouch. On separating some omental adhesions, some serous fluid escaped, and then on passing my finger deeply into Douglas's pouch between the adherent cysts, some thick pus welled up and was caught on sponges. I freely flushed out the whole peritoneal cavity with sterilised saline solution. I did not remove any cysts, as to get the adherent mass away would have been a serious operation with suppuration in the pelvis. I left a large glass drainage tube in the peritoneal cavity, reaching down into Douglas's pouch. This was replaced by a rubber one forty-eight hours after. A fortnight after the operation another collection of pus formed higher up in the abdomen, but after incision and drainage the cavity closed. A sinus, however, persisted from the first operation, at the time she left the hospital, about four months after operation, but the discharge from it was very slight, and I believe it healed soon after her return home.

Case XI.—Intra-abdominal abscess in connection with a malignant growth in the bowel: drainage through the peritoneal cavity.

M. J., aged 50. The patient had a fairly large abdominal swelling to the right of the umbilicus, associated with marked pyrexia. On opening the abdomen over the swelling I came on a red hard mass, with the omentum adherent over it, and with adhesions here and there to the parietal peritoneum. On gently separating some omentum lying on it pus welled up, and this I caught on a sponge, and kept the sponge pressed against the opening until I got iodoform gauze plugged round. I then broke down the adhesions, and liberated some thick, very offensive pus. After the evacuation of the pus a portion of the swelling remained very hard. Before removing the gauze I passed a large glass drainage-tube into the abscess cavity. I then replaced the gauze by a fresh strand, the end of which was brought out of the opening in the abdominal wall with the end of the glass drainage-tube. It was removed in forty-eight hours, by which time the general peritoneal cavity had become securely shut off. Some fæcal discharge was observed on the second day. After temporary improvement, her strength failed, and she died a month after the operation. At the necropsy the abscess was found to be due to perforation of a malignant growth in the hepatic flexure of the colon. The growth was extensive, but had not blocked the lumen of the gut. The general cavity of the peritoneum had not been infected.

Case XII.—Evacuation of pus and fæces from the general peritoneal cavity: free irrigation: recovery.

Girl, aged 8. This case is a remarkable one, and was brought before the Bristol Medico-Chirurgical Society by Dr. Michell Clarke and myself some years ago. There were signs of an intra-abdominal abscess in the left iliac fossa. In fact, the case very much resembled an appendicitis abscess, except that the abscess was on the left side. On dividing the abdominal wall on the outer aspect of the swelling, *i.e.* just inside the anterior superior spine, I came down on what seemed to be greatly thickened peritoneum, and on gradually working through this with the point of a director some pus escaped. I dilated the track gently with my finger, and found a smooth-walled cavity the size of a hen's egg, out of which was an opening at the other end, through which my fingers passed into the peritoneal cavity, where free intestine could be felt. The wall of the abscess cavity seemed to be composed of adherent intestine. The general peritoneal cavity was washed out with a large quantity of hot boracic solution through the abscess sac. As soon as the irrigation was commenced, what appeared at first to be shreds of tissue from the interior of the abscess came away with the fluid, but they were quickly recognised as bile-stained, and were undoubtedly the contents of the first portion of the small intestine. The irrigation was continued until all this material had come away, and then a large-sized drainage tube was placed in the abscess cavity as far as the internal opening into the peritoneal cavity. The fæcal discharge of the same character persisted for some weeks, but there were no signs of peritonitis, and the child was discharged from the hospital six weeks after the operation.

The doubt as to the origin of the abscess was never cleared up. It must, I think, have given way into the peritoneal cavity just before the operation, perhaps during struggling as she went under the anæsthetic, and possibly a small area in one of the adherent coils of bowel, softened by inflammation, gave way at the same time, and hence the fæcal matter found in the general peritoneal cavity.

To these cases must be added two more. One of these I have already published.[1] A large abscess formed under the meso-colon from perforation by a fish-bone, which was found in the abscess sac. I was able to stitch the surface of the meso-colon to the parietal peritoneum before evacuating the pus and thus shut off the general peritoneal cavity from infection. The other case was one of enormous suppurating hydatid of the liver. There were no adhesions between the liver and the parietal peritoneum, but by stitching the liver surface to it around a small area, I was able to evacuate pus and an enormous number of daughter-cysts without infecting the general peritoneal cavity. The case will be published later on, with other cases of hepatic surgery.

[1] *Brit. M. J.*, 1894, i. 241.

SOME UNUSUAL OPERATIONS ON LUNATICS AND THEIR RESULTS.[1]

BY

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I HAVE ventured to publish these five operation cases occurring in persons of unsound mind, as the cases are interesting not only to those working at surgery but also to those whose practice lies more especially in the treatment and diagnosis of mental cases; the recording of these cases may also raise the question, "What effects (if any) are produced on the mental condition after major operations on the insane?" These cases have all occurred within the past year, and I am glad to say, from a surgical standpoint, I am quite satisfied with the results. As time slips by one is rather apt to remember cases that have done well, while those that have done badly sometimes escape our memory. I therefore mention that the operations described below were consecutive ones, and in all of them improvement in the mental condition commenced shortly after operation, and this improvement continued till apparently the brain was restored to a healthy state, which, so far, has continued to be permanent in every case. In none of these operation cases was the bodily ailment even supposed to be a starting point for the deranged mental faculties, as in all the patients the unsound condition of the mind was manifest for months or years before the condition of the body, requiring the interference of the surgeon, was present.

E. K., a young lady whose mind had become unhinged,—it was thought through a love affair,—and who had been under restraint for three years, had two bad ingrowing toe-nails removed; she completely recovered her mental condition within three months.

G. D., a man aged 70, with cystitis and dysuria, was found to have a stone in his bladder. I operated by the supra-pubic method, and

[1] Read at the meeting of the Bristol Medico-Chirurgical Society, on April 12th, 1899.

extracted a calculus two inches long and one inch thick; in the centre of the stone was found a vulcanite pipe-stem. I had the bladder drained for ten days, on account of the cystitis; the abdominal wound was completely healed by the 17th day, the mental condition began to improve at once, and he was cured in body and mind within six months.

A. W., aged 44. This woman had been in an asylum for 2½ years with melancholia and severe suicidal impulses. On admission her physical condition was normal, a year after she had retention of urine and intermittent attacks of menorrhagia which continued for six months; when I saw her she was very anæmic, there was a large solid tumour reaching from the pubes to the level of the umbilicus, the os uteri was easily dilated, and I was able to reach and cut through a broad short pedicle attached to the side of the uterus. My trouble now began: the corkscrews used in the extraction of fibroids held well, but I was quite unable, on account of its size, to take away the tumour, which was now free in the uterus: as hemorrhage was taking place, I was afraid I might have, after all, to do an abdominal section and lay open the uterus, but by the timely arrival of a pair of midwifery forceps, and the exercise of some muscular energy, I was enabled at last to deliver the tumour, which, emptied of its blood, was somewhat larger in size than that of the fœtal head at the full time. The uterus was packed with iodoform gauze to stop hemorrhage; she made an uninterrupted recovery and was discharged mentally cured in some six months.

M. D., a woman aged 46. When first she came under notice there was nothing abnormal in her bodily condition; mentally she was acutely maniacal. When I saw her there was some history of a slight attack of jaundice seven weeks before, followed two weeks later by a sudden severe pain at the epigastrium, with temporary collapse, and afterwards a rise of temperature with diarrhœa: for ten days she seemed better, when the temperature suddenly rose to 104°, rigors came on, and a swelling was made out in the epigastrium, which was dull on percussion with an area of resonance above. I made a free incision, and after letting out about a pint of pus, I found the intestines matted together, the abscess sac being situated between the stomach and liver; I endeavoured to find what was evidently the cause of the abscess, namely, a perforated gastric ulcer; but the stomach was so coated by thick layers of lymph, that I contented myself with getting away as much of the septic *débris* as possible, sponged out the cavity, and packed it with iodoform gauze, leaving the ends outside the wound to act as drainage. The patient was much collapsed, and I must say I expected to hear she had died of septic peritonitis within the twenty-four hours. After some three weeks, during which time there were several attacks of sickness, the vomit containing pus and a watery fluid of a beautiful blue colour, she eventually made a complete recovery, and was mentally cured and discharged some seven months later.

This case was without doubt one of gastric perforation that had formed a residual abscess; whether the perforation was of traumatic origin, or whether it was originally an ulcer that had perforated, it is, I think, impossible to say. At my operation I looked for, but could not find, any trace of a foreign body which might have been the cause of the perforation.

M. R., aged 32. A woman suffering from melancholia with severe suicidal and homicidal impulses, had been under treatment for two years. A year before operation there was much abdominal pain, and a history of eating needles, but no physical signs were found at that time. Six weeks before operation patient complained of much pain over the stomach, there was vomiting at times, she was losing weight rapidly, but no tumour could be made out in the abdomen. Four days before operation the pain in the abdomen became general and more severe, and a hard tumour the size of a small orange was made out in the position of the pylorus; the emaciation was by this time marked; the woman now said she had eaten some hat pins, but statements by lunatics cannot always be relied upon. I saw her on November 30th, and from the symptoms and physical signs I thought I might find a malignant growth of the pylorus. I made a free incision into the abdominal cavity, and came down on a large mass of what looked like cancer involving the pyloric one-third of the stomach; on examining this with my finger, I found half a sewing needle. Having now something definite to guide me, I incised the mass, which was three inches thick and covered the whole of the anterior surface of the pyloric end of the stomach; it was hard and cut like scirrhus, the section, however, showing numerous points of hemorrhage with surrounding rings of various shades of yellow to red,—these were no doubt due to punctures by the hat pins. In one of these zones I could feel a sharp point. I deepened the incision and opened up the stomach, felt the head and extracted the first of the ornaments of the female head-gear. The rule which we follow after having removed a stone from the bladder occurred to me, and I decided to make sure there were no more foreign bodies in the stomach, and to explore the whole of this cavity I had to enlarge my opening, and after some delay I extracted the third and then the fourth offending member, the last being firmly fixed in the coats of the stomach. The heads of the pins prevented nature from expelling the unwelcome guests, but she had tried very hard to shut off the general peritoneal cavity by the deposition of so much fibrous tissue. I closed the stomach by three rows of Lembert sutures, and did not drain or wash out the peritoneal cavity. The operation was a long one, and the patient was much collapsed for forty-eight hours: she however recovered rapidly, the mental condition at once improving; she was up and eating light solid food in three weeks, and was discharged from the asylum three months after operation mentally and bodily cured.

It will be observed that the form of mental trouble in most of the cases was one in which we should not expect to find a rapid improvement, even if improvement at all took place under ordinary circumstances.

I am much obliged to Dr. Law Wade and to Dr. Sproat for the histories of some of the cases, and I feel sure that a good deal of the credit and the pleasing results of the cases under their care is due to the way the after-treatment was carried out.

After the reading of Mr. Bush's cases, Dr. J. H. SPROAT said that all the cases made good mental recoveries immediately after the operations. The cases of uterine fibroid and the gastrotomy more especially call

for remark, as the prognosis of their mental disease was distinctly unfavourable on account of its duration and the constancy of their delusions. Analogous mental recoveries are seen when the insane suffer from severe attacks of acute bodily disease, such as pneumonia or erysipelas; impending dissolution frequently restores the mental condition, and cases of almost hopeless insanity die sane. Such results as accrued from the above cases should determine operation in doubtful cases, and no surgical condition should be allowed to exist in the insane simply because the person is a lunatic. The idea of suicide by swallowing hat-pins was originated in the above patient by reading the gruesome details of an operation for a swallowed hat-pin in one of our up-to-date dailies.—Dr. H. C. BRISTOWE said he had had some years of lunacy experience, but knew very little about surgical operations on the insane. The only case that came actually under his care was a tracheotomy for malignant disease of œsophagus and larynx; whether there was any improvement he could not say, as the patient did not live long enough. Mr. Bush's cases are, however, of great interest; but it was doubtful whether the mental recovery of those patients was due to the removal of the exciting cause, but rather to the mental effect that the operation had on the individual—the substitution of a healthy for an unhealthy introspection. It is a well established fact that in lunacy improvement takes place in the mental condition during an acute febrile disorder, but it is doubtful whether these cases can be included in the same category.—Dr. J. O. SYMES said that the sample of pus submitted by Mr. Bush, in addition to containing the bacillus of blue pus, contained also torulæ and various motile bacteria which were suggestive of its origin from the intestinal tract.

A SIMPLE FORM OF INFLUENCE MACHINE FOR X-RAY WORK.

BY

WILLIAM COTTON, M.A., M.D. Ed.

To get X-rays out of a suitable vacuum tube, it needs to be excited by an electric discharge at a tension of hundreds of thousands of volts. Such a discharge is furnished by the induction coil and by the static induction or "influence" machine, associated in its most elegant and effective form with the name of Mr. Wimshurst. In spite of the obvious advantages of the latter type of machine over the former, very little systematic X-ray work with the influence machine has appeared; and the greater number of the text-books of radiography pass the matter over with a general statement that the

Holtz or the Wimshurst machine from the steadiness and continuity of its discharge is specially fitted for work with the screen. It is possible, however, with a very simple form of influence machine to get good X-ray negatives. Such an apparatus is represented in Fig. 1.

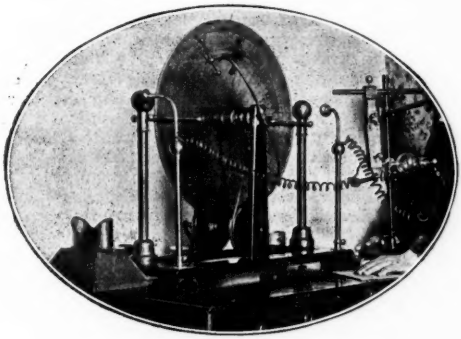

FIG. 1.

The essential part consists of two parallel circular discs of ordinary window glass, 22 inches in diameter, about $\frac{1}{8}$ of an inch thick, and $\frac{1}{4}$ of an inch apart, varnished with shellac. Being mounted centrally on independent wooden bosses, they can be rotated in opposite directions on a horizontal metallic spindle or axle, which pierces them and is supported at each end by a wooden upright springing vertically from a stout rectangular mahogany base. The lower parts of the two uprights support another horizontal axle, parallel to the main one, turned by a handle, with two wooden wheels on it, which by a crossed and an open strap act respectively on the bosses of the glass discs and thus supply the necessary motive power. The glass employed is of the gauge of 22 ounces per square foot. It must be of the highest dielectric quality; green glass and plate glass are found unsuitable, and of white glass of similar commercial standard some specimens are found on trial much fitter than others. Ebonite discs do very well, but exposure to vicissitudes of temperature causes them to bend and buckle, and in time the atmosphere affects them chemically on the surface and so deteriorates their insulating property.

At each end of the main axle where it projects through the supporting upright is metallically connected a movable brass rod, known as the neutralising rod. This rod is bent round at each end towards the surface of the adjacent glass disc, and has jointed to it at each end a straight piece about four inches long, radially disposed as regards the glass disc, parallel to its surface and just within the outer margin thereof. Each straight piece has attached to it at equal distances so as lightly to trail upon the surface of the glass three fine wire brushes. Thus we have two neutralising rods, a near one and a far one, each with two straight pieces, and each straight piece has three brushes,

i.e., there are twelve neutralising brushes in all. In Fig. 1 the greater part of the neutralising rod on the near side of the discs is seen, with its upper straight piece; the upper straight piece and brushes of the farther neutralising rod are dimly seen through the two glass discs.

Besides the wooden uprights, there are situated upon the rectangular base of the apparatus and towards its extremities three other pairs of structures. At the inside or far side of the base are two insulating cups or holders for a pair of Leyden jars, should it be thought advisable to join them up in the circuit. In front of each holder and opposite the right and left lateral rims of the glass discs are two stout vertical rods of ebonite or other insulating material, supporting a polished brass sphere about three inches in diameter—the prime conductors. From the metallic neck of each prime conductor there runs in horizontally for about four inches and exactly in the line of the horizontal diameter of the glass discs a pair of brass collecting rods—one rod in front of the near disc, the other behind the farther one. Each collecting rod has on it at equal distances eight trailing brushes similar to those on the neutralising rods. Thus we have two prime conductors—a right one and a left one—each with two collecting rods, and each collecting rod has eight brushes, *i.e.*, there are thirty-two collecting brushes in all. In front of the insulating supports of the prime conductors is a pair of more slender insulating rods to support the metallic stems of two approximately hemispherical knobs, somewhat smaller than the spherical heads of the prime conductors, which may be called the secondary conductors. The metallic stem is bent to a right angle. The supporting insulating rods can be rotated round the vertical axis and fixed at any point by a small set screw, so that the gap—the spark gap—between the prime and secondary conductor of each side is an adjustable one. It is on the management of these spark gaps, in series with the vacuum tube, that success or failure in the emission of X-rays from the tube mainly depends in the case of the influence machine.

The remainder of the apparatus as ordinarily joined up consists of two well-insulated thick copper wires or "leads," coiled *secundum artem*, running over from the brass stem of each secondary conductor to the external wire terminal of the indispensable Jackson focus tube on the same side. The stem of the tube is held by a specially designed well-insulated stand, with well-insulated ebonite rods to support the wire leads and to take the strain of them from off the external wire terminals of the tube. It is useful in some cases to have some arrangement for a second spark gap in series on each side of the tube; and it is always of importance to have the leads connected with the respective external wire terminals of the tube under cover of small hollow tunnelled brass spheres to minimise leakage of electricity from sharp points by brush discharge outside the tube. The internal resistance of the focus tube best suited for this machine is so great, that the distance apart of the external wire terminals of the electrodes into the tube should be greater than the spark length of the machine in air with tube away, with the same view of preventing brush discharge. To avoid the risk of puncture of the tube by sparking, the tube should have its external wire terminals at least eight or ten inches apart.

With the machine described a pair of Leyden jars may be used in two ways. *First:* The secondary conductors being disconnected from the tube and connected one to another by a thick copper wire between the brass stems, the spark gap between prime and secondary conductor on each side is left open, and the inside of each Leyden jar is put in direct communication with the adjacent conductor. Each

jar is on its insulating cup, and has its outside coating connected by a thick copper lead to an external terminal of the tube. When the accumulated unlike internal charges of the Leyden jars recombine across the spark gaps and the wire uniting the secondary conductors, we have the reverse charges in the outer coatings recombining across the tube. As a result we have one or two explosive discharges per second, with deafening noise and an almost blinding yellow fluorescence of the tube; the screen lights up most brilliantly, but only for a moment. Owing probably to the higher quantity (amperage) of the electrical discharge, this method is dangerous to operator and patient, and very detrimental to the tube: it is only to be used with great caution in radiographing the thickest parts of the body. *Second:* When the apparatus is joined up in the ordinary way, a well-insulated Leyden jar (with the knob from its interior in contact with the adjacent prime conductor), at each side, having its outer coating removed, promises to be of great use. When this arrangement is made, the discharge across the spark gaps is white instead of violet, and is continuous. In this case the jars act as condensers or reservoirs of electricity.

The machine described, like other influence machines which have no metallic sectors, plates, buttons, or knobs upon the discs, is not (except under the most unusual climatic conditions) self-exciting—in other words, the discs are revolved with no electrical effect unless an initial charge of + or − electricity is communicated to one or other of the prime conductors. Once excited, it will not require re-excitement for a whole evening though revolved very slowly, or even allowed to be at rest for a little while. The most convenient method is to have a miniature influence machine, called the "Exciter," of the type which is the best known of Mr. Wimshurst's numerous modifications of the influence machine (shown in Fig. 2, in position to give a − charge of

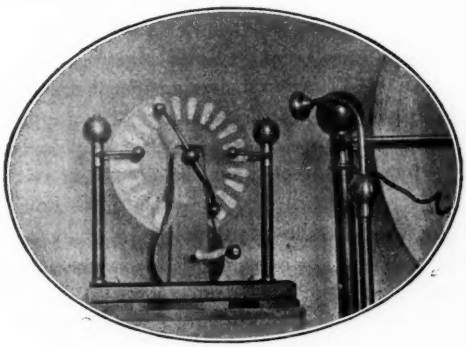

FIG. 2.

electricity to the left-hand conductor of its big relation). The sectors render it self-exciting—it has two glass discs seven inches in diameter, each with twenty-four tinfoil sectors on outside face, one brush on each neutralising rod to touch the passing sectors, and brushes on the collecting rods. There is a $1\frac{1}{2}$-inch spark. For exciting purposes, only one prime conductor is needed on it; the other is superfluous.

It will at once be seen that structurally the two machines are almost identical. The influence machine described at length is a sectorless Wimshurst—it is a Wimshurst without sectors, with trailing brushes at the collecting and neutralising rods instead of points that are not in contact and brushes that merely touch the metallic sectors. In practice the sectorless Wimshurst is to be preferred to a sectored one of the same size for five reasons :—

(1) It is easier to construct and keep in order—it is simpler.

(2) It never reverses polarity during running—the other does so occasionally.

(3) It has a greater output of electrical energy—the tube lights up better with the same amount of mechanical energy expended on the handle.

(4) In a sectored Wimshurst, where there is a great resistance in the tube, the inner ends of the sectors leak towards the boss, as shown by a visible brush discharge.

(5) After prolonged use the friction of the brushes on the sectors as they pass leads to the formation of rings of metallic deposit, which break down the insulation.

On the other hand, except under exceptional circumstances, the sectorless Wimshurst is not, and the sectored Wimshurst is, self-exciting.

The sectorless Wimshurst having been carefully dusted, has a charge communicated by spark or contact from the exciter, and the discs are revolved. One soon learns which is the proper prime conductor to charge, according as the cathode or anode is left or right in circuit. Most operators find it convenient to turn the handle from left to right over the top of the circle. The energy to be expended is quite within the ability of an intelligent small boy. It is not a very high form of skilled labour to turn a handle steadily, and as a rule there is no lack of willing amateur assistance available, so that the medical man's attention can be entirely devoted to keeping the injured part and the patient steady. The most effective output of electricity is got when the winch is rotated eighty times a minute, giving 200 revolutions in the same time to each glass disc in opposite directions. The spark gaps are opened gradu-

ally from contact till the tube fluoresces brilliantly, which it never fails to do; unless there is actually damp deposited on the outside of the tube, the spirit lamp is entirely unnecessary. The focus tube to be preferred is one adapted for a nominally 10-inch spark induction coil: the sectorless Wimshurst gives with Leyden jars a maximum spark of 10½ inches; without, in favourable conditions of atmospheric dryness, a continuous brush discharge of 9½ inches in length between terminals when the tube is removed. All the brass work of the conductors should be of the highest finish, to avoid the formation of any pointed parts and consequent brush discharge owing to local increase of electric density; and for the same reason care must be taken that if any silk fastenings are made at the external terminals of the tube the knotted ends be cut short. Otherwise we shall get a large part of the discharge streaming away visibly. Bedclothes in the neighbourhood of the circuit should be put out of the way, for if they are heaped up towards the tube, the moisture in them streams up and locally breaks down the atmospheric insulation. The apparatus, joined up in the ordinary way, is free from noisiness—there is only a low-pitched hissing sound. The odour associated with the presence of ozone is very perceptible. It is found that the best results are obtained when the upper end of the nearer neutralising rod is situated 30° to the left of the vertical, and that of the farther one the same distance to the right (the "five minutes to five" position).

The self-excitement of the sectored Wimshurst on rotation is commonly explained by saying that when there are a number of metallic insulated plates scattered over a large non-conducting surface, one or other of them is pretty sure to be above or below the rest in electric potential. In other words, there is always an initial charge somewhere about. If the *rationale* of action of the ancestral electrophorus of Volta be kept in mind, it is comparatively easy in a general way to understand how by mutual induction (of each on all the rest) the metallic sectors of a sectored Wimshurst, one or other of which has a charge in it, can on rotation give rise to a continuous heaping up of + electricity at one prime conductor and of − electricity at the other, while the neutralising rods by the touch of their brushes

on the passing sectors play the part of the touching finger on the "shield" of the electrophorus. The sectorless Wimshurst, once it has an initial charge given to one of its prime conductors, produces, in a manner that is very obscure, a similar heaping up of a + and a − electricity at opposite conductors. Mr. Wimshurst suggests that in the sectorless machine the trailing brushes (which ones?) act as sectors. Finally, the recombining electricities discharge across the vacuum tube put in the path of their reunion.

The results obtained by means of the sectorless Wimshurst described may be given under two heads.

I.—**With the Screen.**

I was able to see the shadow of a watch through the trunk of a thickset man; the heart with the pericardial bag was quite distinctly seen in outline suspended in the thorax of a boy of ten viewed from the back; in a young lady of twelve, the waves of contraction of the heart muscle on its left border were seen quite deliberately passing downwards in regular succession, viewed from the front of the chest; it was always possible with the Leyden jars joined up to get the fluorescent glow on the screen through the adult trunk. Every detail of the bones, even the fissure of a fracture if caught in its plane, could be seen in the hand, wrist, elbow, and ankle of the adult, and the shoulder and thorax of a young boy. In all these parts we get indications of soft tissues. The bones of the phalanges and metacarpus could be distinguished five feet from the tube through a wooden door; and at the same distance the screen lit up through a brick partition.

It is an interesting point to note that the fluorescent screen glows with a light that has very little actinic power. Photographs with an ordinary camera of objects shadowed on the screen have been taken successfully, but I have never seen any, and have failed again and again to obtain a negative at different distances and with different kinds of plates, even after an exposure of ten minutes. On the other hand, it is easy to obtain a good photograph of a fluorescing focus tube with an exposure of a quarter of a minute; while everyone knows the electric spark under the same conditions photographs itself instantaneously.

FIG. 3.

OBLIQUE FRACTURE LOWER ⅓ OF TIBIA IN ADULT.

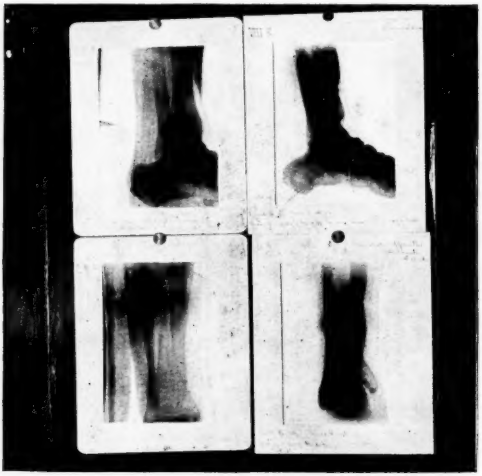

FIG. 4.

OBLIQUE FRACTURE OF METACARPAL BONE OF RING FINGER
(two months after injury).

To employ a screen to the best advantage the room must be darkened, and the eyes prepared by being kept in a dimly lighted room for ten or fifteen minutes. Daylight should always be religiously excluded.

II.—**With the Photographic Plate.**

The duration of exposure is somewhat long; about half the time would be sufficient where the detection of the presence only of a metallic foreign body is needed. We get pictures with detail and sharpness and quite a perspective effect, not mere shadowgraphs. To do justice to the negative, I always use gelatino-chloride paper, slightly undertone, and squeegee on polished glass. Shortness of exposure for its own sake is not much of an object when using the Wimshurst apparatus, as the patient keeps placid, and the operator is not obsessed by the haunting idea of impending collapse to one or more parts of a long train of complicated and costly apparatus. To give examples of the degree of detail, the sesamoid bones of the hand and foot (including that in the tendon of the peroneus longus as it crosses the sole of the foot) came out sharply, and we get details of all the bones of wrist, elbow, ankle, and knee, especially in the adult—the fibrous structure of the os calcis and astragalus is quite distinctly shown. Time of exposure: *Adult:* Fingers, 2 minutes; hand, 8—10 minutes; forearm, 10 minutes; elbow, 10 minutes; shaft of humerus, 10 minutes; shoulder (with clavicle, ribs, and scapula), 45 minutes; foot and ankle, 16—20 minutes; knee and leg, 20 minutes. *Aged 12:* Hip-joint, showing pelvic brim, 20 minutes. *Aged 6:* Femur, shaft, 18—20 minutes. *Fœtus, 6—7 months:* 15 minutes.

Among my own cases were fracture of upper part of ulna in a boy of 10; fracture of the shaft of the femur in a boy of 6 on the 24th day; oblique fracture of the lower end of tibia in an adult (see Fig. 3, where the two ankles above and below to the left were taken on the 29th day, the others on the 96th): fractures of the metacarpal bones of the thumb in adult and of the ring finger in adult on the 4th and 64th days (for this last see Fig. 4); in these and in others the fragments are seen in perspective and, as it were, one through another where they overlap. Those figured have been chosen to show the easily

available range of the apparatus described. In two cases of suspected renal calculus, after two trials, in each case of about 35—45 minutes each, no stone appeared in the negative, only the indication of some ribs in the thinner (female) subject, and of the iliac crest in the other (a male). In both cases, at both trials, sufficient rays were got through to bring out the shadow of a coin lying on the envelope of the photographic plate. In the first case I was quite satisfied that if an oxalate of lime calculus—which is the most opaque of calculi to X-rays—had been present, it would have appeared on the negative. To be successful in these cases a more powerful apparatus is needed, say one with two pairs of discs 22 inches in diameter, or with two discs 36 inches in diameter; or possibly the same apparatus would do with a very soft tube.

In the cases enumerated, the average distance of the platinum plate from the photographic plate would be about 12 inches. At this distance a whole plate uses up only about $\frac{1}{15}$ of the available area of X-rays, and at 15 inches only about $\frac{1}{24}$, assuming the rays to radiate with equal intensity from the anti-cathodal centre of emission over just a little less than a hemisphere.[1] Some day we shall learn how to economise our X-rays a little better.

Dr. Monell[2] states that his apparatus (constructed originally for therapeutic purposes) consisted of an 8-plate 30-inch Holtz machine, not self-exciting, driven by a $\frac{1}{6}$-horse-power motor. He took a detailed radiogram (14 by 17 inches) of a fully clothed adult woman from a distance of twenty-five inches in five minutes. He undertakes to get negatives of the hip-joint, of renal calculus, or metallic bodies anywhere in the trunk of the adult in five minutes at twelve or fifteen inches distance. He publishes no radiogram, nor have I been able in any of the text-books, including those mentioned at the end of this paper, to find any radiogram avowedly obtained by means of an influence machine, except one[3] of a purse containing a key and

[1] "Further Observations on the Properties of X Rays," by W. C. Roentgen, translated in *Arch. Roentgen Ray*, 1898-99, iii. 80, 82.

[2] *Manual of Static Electricity in X-Ray and Therapeutic Uses*, 1897.

[3] *Roentgen Rays and the Phenomena of the Anode and Cathode*, E. P. Thompson, 1896, p. 99.

two coins obtained in sixty minutes, and another[1] of a bird showing excellent detail, and one[2] of a frog, of which the same may be said.

The ordinary process blocks of the periodicals are very unsatisfactory in reproducing the delicate gradation and detail of Wimshurst negatives. Lantern slides by reduction from the negative are also unsatisfactory. Lantern slides by contact are better; and lantern slides by reduction from a glazed silver print on gelatino-chloride paper are best of all. In this case, after taking precautions to avoid flares from the highly-glazed surface of the print, a quarter-plate process plate negative is taken in an ordinary camera; and the negative when developed for contrast is intensified slightly for the finer detail. Lantern slides are then taken from the process negative by contact, or prints may be got in miniature of the original ones. The method is further useful when we wish to show by lantern on the sheet a grouping together of different prints. After all, nothing comes up to the original highly finished gelatino-chloride positives. In every case the photographer must have the usual methods of negative development and intensification at his finger-ends to get the best results of his X-ray exposures.

The advantages of an influence machine in X-ray work may now be considered, taking as a standard of comparison an eight- or ten-inch spark induction coil, with special reference to the sectorless Wimshurst described.

(1) The primary inducing current of the coil and its appurtenances are abolished. There is no primary battery or accumulator, no interrupter, no primary coil, and consequently none of the uncertainties, annoyances, or risks of breakdown associated with the use of these pieces of mechanism. Further, the absence of Fizeau's condenser (a necessary part of the primary circuit to render the discharge of the secondary coil unipolar and to minimise the sparking at the platinum contacts of the interrupter) removes one source of "fault" development (and breakdown by sparking penetration of an insu-

[1] *The A.B.C. of the X-rays*, W. H. Meadowcroft.

[2] *Arch. Roentgen Ray*, 1898-99, iii. pl. LV.

lating partition) somewhere over its forty or fifty square feet of area—a fault that is difficult to locate, reach, or repair. A similar remark applies to the secondary coil of the induction coil proper, with its six or eight miles of fine insulated wire, which at any point, from overheating or mechanical injury or sparking perforation due to overdriving, may likewise develop a "fault." In place are substituted two glass discs in the open, easily removed and replaced if broken.

(2) Owing to the small amount of electricity, though at a high tension, passing continuously and regularly, the life of the tube as regards useful work is a prolonged one. There is none of the heating of the internal terminals of the tube under the heavy, interrupted, and it may be irregular discharges of the induction coil. The tube, not a very soft one to begin with, used for the last year with the sectorless Wimshurst has been under continuous discharge for a total of over 160 hours, and has only recently shown signs of "hardening." This hardening over its first condition is probably due to the use of the Leyden jars, for a few hours in the aggregate, by means of their outer coatings, in the manner described. When joined up in the ordinary way the tube never appears to heat and has never failed to respond promptly to the excitation of the discharge. The only difference to be noted is that the spark gaps have to be a little wider than they were a year ago. The tube has never turned sulky or needed to be coaxed with the spirit lamp or by any other of the empirical methods resorted to by the practical worker with the coil. It is probable that with the coil no tube after the first dozen hours of exposure to actual discharge but is perceptibly hardened, especially if the capacity of the apparatus is forced to its utmost. The sharpness of the Wimshurst negative is probably due in part to the quiet continuous discharge, the small emitting area not shifting, nor the original fine adjustment of the cathode and anticathode altered by irregular or extreme heatings under greatly varying discharges. To put the matter in a nutshell, it is hardly to be expected that any induction coil set, worked at a strain to perform some *tour de force*, however successful at the time, will repeat the performance, while a static induction machine

may be almost surely relied on to do again what it has once done.

(3) It is generally acknowledged that the continuous non-flickering, uniform discharge, varying only with the rate of rotation of the discs up to a maximum, of the influence machine renders it more suitable than the induction coil for work with the fluorescent screen. But, further, it is peculiarly fitted, especially if driven by a well-regulated electric or other motor, for delicate and prolonged experimentation, *e.g.* for photometric observation of the intensity of the fluorescence under different conditions; for examining into the influence of X-rays on bacteria in the animal body or in cultures; for testing the action of the rays on growing plants or germinating seeds. All such experiments when made with a coil labour under the fallacy that nothing certain is known quantitatively about the agent employed, except that it is on the whole after a short time irregularly diminishing in energy. The Wimshurst apparatus is the only one at present known in X-ray work that is adapted for the standardising of X-ray electrical, fluorescent and other physico-chemical effects.

(4) When joined up in the ordinary way without Leyden jars the static induction machine gives a discharge which is absolutely harmless to operator or patient, even if the live wires be purposely handled. A pricking sensation hardly amounting to pain and a fading of fluorescence in the tube is the sole result. There are none of the dangerous shocks to be apprehended from accidentally touching the circuit of the induction coil, on account of the small amperage associated with the continuous discharge of the former apparatus. No cases of eczema have been reported with the influence machine as yet; it would be very interesting to test the matter by exposing to X-rays from a tube excited by an influence machine individuals who are known to be susceptible to X-rays and to have previously suffered from exposure to a tube excited by a coil. In demonstrating his fluorescent screen, the demonstrator has had to be exposed to the rays of the tube with his trunk in close neighbourhood thereto for four and a half hours without any inconvenience.

(5) In regard to portability, an important question as regards cases that have to be X-rayed in their own bedrooms, it may be mentioned that the sectorless Wimshurst weighs 28 lbs., the Leyden jars 3 lbs. each, the focus tube and stand 7 lbs., and the exciter 7 lbs.—in all 45 lbs.,—just a little over the weight of a six-celled charged lithanode accumulator; the jars are not indispensable, and in this case the apparatus weighs rather less. The whole apparatus can be packed in a box 39 × 19 × 14 inches, which can be used as a pedestal.

(6) The cost of an apparatus is about half or a third of a coil set giving the same length of spark; and there is no cost for maintenance or repairs, there being no accumulators to re-charge or parts to wear out.

The objection most urged against the influence machine is that it is liable to be much affected by damp and dust. Most certainly it is not more so than other electrical apparatus, and with ordinary care there is no great difficulty in keeping it in working order. Mr. Wimshurst says his machines work in the damp; he keeps them in glass cases permanently, to avoid dust and handling by the inexperienced. The sectorless Holtz is more susceptible to damp, and requires to be kept permanently in a case with a bowl of chloride of calcium, changed every six months, to keep the air dry. The sectorless Wimshurst described is kept in an ordinary room without any casing, and taken without packing in a cab to the patient's house; and if the night be damp, a little warming at a fire and dusting with a silk handkerchief is all that is required. On only one occasion I have seen it make a failure, and then it was on a very damp night in a long damp vault of a schoolroom, set up for use on a platform that had just been brought in from lying in the drizzle. Even under these circumstances we got a fair negative of metallic objects, and could see the bones of a man's fingers on the screen.

This paper has been written in collaboration with Mr. Thomas Clark, of Horfield, Bristol. He is almost entirely responsible for the electrical part of it. Some time ago he experimented successfully for X-rays with a sectored Wimshurst of his own construction, and was led to devise and construct the sectorless modification described above. His

apparatus and some of the resulting radiograms were demonstrated lately by means of photographs and lantern slides before the Roentgen Society of London, and roused considerable interest among the electricians and medical men present. Having worked previously with coil and accumulator, I can speak from personal experience of the advantages and convenience of his system, especially in patients' own homes.

The Roentgen ray is the gift of Experimental Science to the Art of Medicine; it remains to be seen what uses the physician will make of this munificent present from the physicist. Simplicity of apparatus, provided we have efficiency and reliability for ordinary purposes, is the necessary condition for a general application of the new light to diagnosis by the practitioner. It is interesting to note that the evolution of the existing therapeutic influence machines for X-ray purposes has been in the direction of simplification, whereas the induction coil tends every day to become increasingly elaborate, complicated, and costly.

Mr. Wimshurst's latest expressed opinion is that "in a few years influence machines will be the only generators of electricity in use for X-ray purposes."

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Progress of the Medical Sciences.

MEDICINE.

Common as **malaria** is in Bristol in returned sailors and soldiers, nothing is more remarkable than the disappearance of the home-grown disease from England in the last fifty years, and it is to be hoped that our neighbours in the marsh districts

will exert themselves to discover whether those mosquito gnats have actually vanished from this country which have been shown to transmit it. Stephens found two species of anopheles here in 1825, and an investigation has been set on foot to determine whether they, like the malaria, have ceased to multiply on British soil.

Thin [1] points out that one great objection to the **mosquito theory** of malaria fell to the ground when it was shown that only certain species conveyed it, for both the fever districts and the healthy ones in Sicily swarm with mosquitos. Grassi [2] found that in Italy Culex pipiens swarmed in places where there was no human malaria; but where this disease existed the anopheles, or else the Culex penicillaris or Culex malariæ abound. Ross had already shown that C. pipiens was the form which produced malaria in sparrows, and had traced the development of the avian parasites in its body. The Italians did the same with the human plasmode in anopheles, and last autumn they produced malaria in a healthy man, who volunteered for the experiment, by shutting him up with these mosquitos which had been brought from an infected district. It has been shown that the young ones when hatched in a laboratory cannot convey the disease; but if they bite an affected person, and are kept some days in a warm temperature, they will then produce in a previously healthy person the exact type of malaria from which the first man was suffering. Thus experimental proof has been given of two points: the first, that the parasite can pass from the human body to a second host in certain mosquitos; and secondly, that mosquitos can produce the disease in men. Koch notices that in the central parts of Rome malaria does not appear, although the water comes from malarial districts; and Bignami and Grassi bring an argument against the theory of air-borne infection, showing that the plasmodes cannot bear the least desiccation.[3] Against the actual facts of the Italians, Lawrie's theoretical objections have little weight. So late as last December we find him asserting that the Laveran bodies are merely degenerate blood cells.[4] Thayer and Hewetson found them in every one of 616 cases of malaria except two or three convalescents.[5] Still, Ewing [6] acknowledges that occasionally they cannot be met with in a typical case of æstivo-autumnal fever; but even then a search in the spleen will sometimes reveal them, just as in similar cases of typhoid.

According to Ross,[7] the **life history of the plasmode** commences with its existence as an amœbula in a red cell which develops either asexually by spores for several generations in the same host; or, by gametocytes, such as the crescents, which, taken up by mosquitos, show male and female forms.

[1] *Brit. M. J.*, 1899, ii. 349.
[2] Quoted in Editorial, *Brit. M. J.*, 1898, ii. 1767. [3] *Ibid.*
[4] *Lancet*, 1898, ii. 1468
[5] *Johns Hopkins Hosp. Rep.*, 1895, v. 5. [6] *N. York M. J.*, 1899, lxix. 149.
[7] *Nature*, 1899 lx. 323.

Filaments from the male forms attack the female ones. The fertilised body is termed a zygote, which grows in the stomach-wall of the mosquito, and finally produces the flagellulæ or zygotoblasts. These pass into the salivary duct and stylet of the mosquito, and are introduced into a new host. If it can be shown that we can extirpate the malaria-bearing species of mosquito in a given locality, and that they are only a few out of many, the propagation of the parasites and of the disease may be stopped. It is claimed that their breeding places are comparatively few, and that the larvæ are killed by a few drops of paraffin thrown into the pool where they live. However, the subject is yet in its infancy, and one in which Bristol men may find an ample field for study.

* * * *

Gastric ulcer is clinically accompanied in most cases by hyperchlorhydria, which, if not the cause, at any rate has great influence in prolonging the condition. Hence the value of **treatment directed against the excess of acid**, such as feeding entirely by the rectum and the use of the fixed alkalies, as magnesia and carbonate of bismuth, to neutralise the secretion without stimulating it as soda does. Milk, too, is valuable from its rapid combination with the free acid. Thus Frèmont[1] gives an ounce of warm milk with bismuth and magnesia every half-hour for twenty hours to be increased if the pain is not relieved. Olivetti[2] finds that the plan of giving massive doses of bismuth, 2½ to 5 drachms, every morning on an empty stomach, for which so much has been claimed, produces little change in the motility or secretions of the organ; while Soupault declares that sodium chlorate in divided doses of two drachms daily, given when the stomach is empty, affords great relief in ulcer or hyperchlorhydria.

Tripier,[3] to cope with **hemorrhage**, employs rectal injections of hot water at a temperature of about 120° every few hours, and allows no food to be given by the mouth. A form of ulceration, the minute erosion of gastric arteries, originally described by Murchison, is of interest from the absence of the usual dyspeptic symptoms beforehand. Dieulafoy and Lindsay Steven[4] have each pointed out that it may be the initial form of the ordinary round ulcer. The condition however has been rarely seen, and similar cases have been referred to vaso-motor disturbance. There is merely a small superficial abrasion with an opening into a vessel, easily overlooked. The hemorrhage may be extremely profuse; one of Steven's patients lost ninety-six ounces, and in another gastrotomy was unsuccessful from the difficulty of finding the bleeding point. The diagnosis would have to be made from ordinary ulcer, varix of the stomach or œsophagus, cancer, hyperæmia in heart disease, and duodenal ulcer.

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[1] *Am. J. M. Sc.*, 1898, cxvi. 610. [2] *Brit. M. J.*, 1898, ii. Epitome, p. 103.
[3] *Brit. M. J.*, 1899, i. Epitome, p. 12. [4] *Glasgow M. J.*, 1899, li. 5.

Renal tuberculosis has been largely relegated to the care of the surgeon, partly as a local affection which should be removed as early as possible lest the bladder and general system should be affected, and partly from the little success which has attended medical treatment of tubercular diseases in the past. It is an interesting question, as our treatment of phthisis becomes more and more perfect, how far this view must be altered. In other words, can we expect such local affections, at least in their earliest stages, to disappear under the increased resisting power of the tissues brought about by fresh air, increased nourishment, climatic and other aids? How many instances of spontaneous cure and of recovery, more or less complete, under improved conditions of general health are on record? Enough to show that as great results may be hoped for with the improved methods as in phthisis.

The kidney is attacked either above from the blood-stream or below from the bladder, prostate, and testes, and practically never by direct invasion from a neighbouring tubercular focus such as a suprarenal one. In the **descending type** the first lesions are seen in the cortex or as minute tubercles under the mucous membrane of the pelvis,[1] and the disease may take the miliary or caseous form, or produce a pyelo-nephritis. The bacilli have been demonstrated in the glomeruli before any pathological changes were observable, and the possibility of their frequent passage in tuberculous patients through the kidney without injuring it is to be considered. Tilden Brown[2] seems to think this may sometimes be the case, but he does not give any instances where bacilli have been found in the urine and the kidneys after death proved to be normal. On the other hand, he points out that in descending tuberculosis the disease in the kidney may be far advanced before any symptoms appear.

The absence of symptoms in the descending form previous to an eruption into the calices is in marked contrast to the violent pain and dysuria which occur in early stages when the infection **ascends** from the bladder.

If, then, we have often no means of diagnosing an early attack, it may be asked whether we may expect the disease in any definite **percentage** of tuberculous patients. Chambers found it occurred in 18 per cent, Tilden Brown in 34, Collinet 5·5, and the Prague statistics give 5.6. But even if these figures were trustworthy they would be of little use, because the disease is so often the first or the only manifestation of tuberculosis, and we do not know the relative frequency of these primary and secondary cases. In doubtful instances some importance clearly attaches to a tubercular history or the presence of disease in the lungs, epididymis, bladder, peritoneum, or intestines; but it has been experimentally produced by

[1] Bryson, in *A System of Genito-Urinary Diseases* [*etc.*]. Edited by Prince A. Morrow, vol. i. part ii., 1893, p. 837.

[2] *N. York M. J.*, 1897, lxv. 377.

injection of bacilli into the aorta by Borrell, and the mode of entrance into the system may be undiscoverable. We can only say that renal tuberculosis has been found in from 1 to 2 per cent. of all necropsies in 5,000 cases by Morris and Carmargo; it is more common in men than in women, and rare in infancy. In about half the cases both kidneys are affected, and at an early stage the prostate will show one or two hard nodules in almost every case, according to Bryson,[1] even when the disease began in the kidney. The opinion is generally held now that the descending form is the prevalent one, though Rokitansky and many others took the opposite view. All authorities however agree that the prostate rarely escapes, and emphasise the importance of its examination. Hamill,[2] who collected fifty-five cases in children under 14, finds that in them the disease is almost always of the descending type, genital tuberculosis as a starting point being certainly rare at this age.

When **symptoms** do occur, they may include paroxysmal or continued pain in any part of the urinary tract, hæmaturia with acid urine, the presence of a tumour, the signs of bladder irritation, and tubercle bacilli. Brown remarks, as important in an early stage, the curious pallor of the face, a slight evening rise of temperature, and an increase in the water excreted. The last is probably compensatory to the destruction of part of the kidney, as shown in Rose Bradford's experiments. Casper[3] notes that there is sometimes an entire absence of pyrexia throughout the disease, and quotes four such cases. Generally in later stages, and with septic kidneys, marked hectic with irregular chills occur, with emaciation and weakness. Tube casts are usually absent; albumin derived from the blood and pus cells is found when actual erosions have taken place into the urinary tract, but it is not in excess of that due to the pus or hæmoglobin present. Occasionally it is found with casts, but without blood, at an early stage from a secondary nephritis, but generally the remaining tubules do their work perfectly, and Lacomb records a death from double renal tuberculosis where no albumin had been present. Stress has been laid on the increased frequency of micturition by night as well as by day (Brown), but it is curious that nocturnal incontinence in children never seems to be due to this disease. Of late years the cystoscope has proved of the highest value in diagnosis, showing lesions in the bladder and about the mouths of the ureters, and enabling us to draw off the urine from one kidney separately. This latter aim can be attained also by a simpler instrument devised by Harris.[4] As to the hemorrhage, it appears sometimes at an early stage from congestion,[5] and later on from the erosions, and varies widely in amount. Unlike

[1] *Loc. cit.* [2] *Internat. M. Mag.*, 1896, iv. 881.
[3] *Centralbl. f. innere Med.*, 1896, xvii. 471.
[4] *J. Am. M. Ass.*, 1898, xxx. 236. [5] D. Newman, *Lancet*, 1898, ii. 14.

that caused by calculus, it is not increased by moving about. Sometimes by clots and sometimes from the *débris* of kidney tissue a ureter is blocked up, and thus we may find more or less complete retention alternating with profuse urination. This in turn may lead to hydronephrosis, but in other cases a tumour may be due to a collection of pus around the kidney, and often moderate enlargement of the organ takes place without suppuration.

If we turn to the question of the **bacilli**, there are two difficulties: first, their discovery at all, which may be impossible when there is much pus or blood present; and, secondly, their diagnosis from the smegma bacillus. Van Ketel[1] prefers to make a large number of specimens and stain twenty-four hours in an incubator with anilin water fuchsin, or if we can wait till the blood disappears the urine may be centrifugalised and stained rapidly with carbol fuchsin. If much pus is present, he shakes up with carbolic acid for five minutes, and allows it to settle, clearing the specimens by immersion in alcohol and ether. Von Jaksch recommends plate cultivations for separating the septic organisms present. For distinguishing the smegma bacillus, advantage is taken of the fact that it is decolourised by strong alcohol, while the tubercle bacillus is unaffected. Thus T. Brown, after Ziehl's fuchsin, employs a final bath of alcohol for more than five minutes; or we may counterstain with strong alcoholic methylene blue. Grünbaum finds the smegma bacillus in 50 per cent. of normal urines, and advises careful catheterisation to obtain urine free from it; but this seems hardly trustworthy, for the bacillus sometimes makes its home in the bladder.

With regard to **treatment**, pain is best relieved by codeia, according to Bryson,[2] who adds that cures are more often produced by antitubercular remedies than is generally believed. Among them he mentions sandal wood oil, cubebs, cod-liver oil, creasote, and especially change of climate. T. Brown has met with instances of surprising improvement even in advanced cases from rest, good food, change of climate, and large doses of creasote, and he claims that many early cases can be cured. Though, theoretically, it is desirable to get rid of a focus of disease in one kidney, yet the shock of operation may cause lesions elsewhere to spring into activity, and this point seems worthy to be taken into account. Savariaud[3] sums up the cases for operation as those where the patient is sinking from his sufferings or absorption of toxins, those where the kidney is practically destroyed by suppuration or where retention of urine or a peri-renal abscess exists, and finally some rare instances where hemorrhage or pain is so great that life is endangered. General miliary tuberculosis or advanced lung disease are a bar to operation, and all writers are agreed on the importance of avoiding catheterisation or washing out the bladder,

[1] Quoted by Webb, *Brit. M. J.*, 1898, i. 1202. [2] *Loc. cit.*
[3] *Gaz. d. Hôp.*, 1898, lxxi. 821.

which is sure to aggravate the trouble even when antiseptic precautions are taken. The bladder irritation is often not due to infection, but merely to the passage of *débris* from the kidney. Israel[1] considers that the condition of the second kidney is of more importance than that of the bladder with respect to operation, and if not tuberculous it may show amyloid changes or chronic nephritis. In such cases the diagnosis is most difficult.

The **mortality under surgical treatment** has been urged against it. Thus Facklam's statistics recorded a death-rate after nephrotomy of 60 per cent., and of 28 per cent. after nephrectomy. To discuss this subject would, however, be out of place here, but I may mention that Bolton Bangs,[2] after analysing 135 recent cases, speaks strongly in favour of surgical intervention. He claims that the immediate results are brilliant in relieving pain and prolonging life, and that the remote results are better than those of medical treatment. His figures show a death-rate of 20 per cent, or 29.6 per cent. if we include the nine months after operation. However, the fact is that no statistics of other methods exist and few of the many recoveries are reported. It would seem probable that with better diagnosis and improved hygienic methods a vastly greater success might be obtained without surgical aid.

Both in medical cases and when the fitness of a patient to undergo an operation has to be decided upon, the question often arises whether the kidneys are acting normally and excrete effete matters in due quantity. The symptoms of kidney disease are not always trustworthy, and a test has been devised which may have a certain value. This is the **injection of methylene blue**, which in health colours the water in half an hour, and shows increasing effects for three or four hours.[3] In kidney disease, except in acute epithelial nephritis, a delay in the occurrence of the tint is constantly found. Failure of a functional character is also met with where no lesions after death are demonstrable, and conversely, if the lesion is small and much healthy tissue remains, permeability may be normal. To carry out the test 1 c.c. of a one in twenty solution of pure methylene blue (not methyl blue) is injected into the gluteal muscles, and the bladder is emptied at the same time and again in half an hour, and then every hour afterwards. A colourless derivative is sometimes passed before or together with the blue. If urine containing this chromogen is heated with acetic acid a green tint appears. Achard and Castaigne believe that if both the chromogen and the blue are absent in the first specimens permeability is very feeble, but if the blue alone is delayed there is only a functional failure. The test seems to be quite harmless, and may throw light on the

[1] *Deutsche med. Wchnschr.*, 1898, xxiv. 443; abstract in *Post-Graduate*, 1898, xiii. 1066.

[2] *Ann. Surg.*, 1898, xxvii. 14.

[3] *Bull. et Mém. Soc. méd. d. Hôp. de Par.*, 1897, 3e sér., xiv. 637; abstract in *Med. Rec.*, 1897, lii. 554.

condition of many patients whose symptoms are obscure. Herter[1] thinks, however, that in advanced renal disease the injection is not without danger, and finds that in most individuals the colouration ceases in thirty-six hours. He adds that the disappearance of the dye in that time shows probably that the kidneys are normally clearing the blood of urea, salts, and other matters, although the urine may show albumin and casts. Numerous other papers have appeared on the subject.

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The vexed question, What are the effete matters retained in **uræmia**? has had some light thrown on it by the experiments of Monari,[2] who finds that when excretion is defective there is not only an alteration in the density and corpuscles of the blood, but that the bactericidal power is lessened, and an important invasion of various microbes takes place. In 24 out of 30 cases he was able to find the B. coli, staphylococci, and other organisms in the blood, either alone or in combination. Thus uræmia is a septicæmia produced by various infections when the blood cells are weakened by the retention of any of the usual excreta, and the toxins thus formed are the causes of the various uræmic symptoms. Herter[3] points out that retention of potassium salts cannot be a cause of the toxicity of the serum in this state, for the serum contains very little of them. Nor is it due to urea or extractives, for the toxicity is lost at a temperature which has no effect on them. J. Rose Bradford, indeed, argues[4] that laboratory results do not settle the question, for experimenters can only by excision of the kidney produce "latent uræmia," such as is seen in suppression of urine either from obstruction or from paralysis of the kidney, and in this form nearly all the symptoms of true "acute uræmia" are absent. This absence may, however, be due to the fact that life is not prolonged sufficiently to produce the acute uræmia of Bright's disease. The retention theory, he agrees, is disproved by many facts, but he shows that there is a great disintegration of tissue in the muscles from altered metabolism and a formation of broken-up products in excess in the muscles. This, according to Monari, is due to the bacterial invasion which he has discovered, and it would seem that the toxins and not the urea and creatin are the active poisons.

Two practical points follow. One is the great **danger of massage** in gout and other quasi-uræmic states, because by it a large quantity of toxins may be suddenly driven out of the muscles into the circulation, producing what is known as "massage kidney"; and the other is the **value of bleeding** in uræmic asthma and allied conditions, if, as Herter says, the heart is strong, the tension high, and the anæmia not too profound. With it may be combined saline injections, at first

[1] *Phila. M. J.*, 1898, ii. 899.
[2] *Sperimentale*, 1897; abstract in *Brit. M. J.*, 1898, i. Epitome, p. 52.
[3] *Med. Rec.*, 1897, lii. 280. [4] *Lancet*, 1898, i. 919.

in moderate amount, but afterwards increased if the kidneys are able to react to them. Booth and Huchard[1] gave as much as 2,000 grammes daily with brilliant success in a case of surgical kidney, and with permanent relief. Copious enemata were also employed; but only moderate hypodermic injections of saline were used at first, till it was seen that the kidneys were sufficiently active. With anasarca and scanty urine, there is a danger that the fluid may fail to pass away and only increase the existing evils.

* * * *

Von Noorden,[2] in speaking of the **diet** desirable **in chronic kidney disease**, points out that the distinction of white and dark meats rests on no scientific basis, and the restriction of patients to the former interferes uselessly with their appetite and comfort, while the physiologists find that the highest creatin values are in the white meat of chicken and rabbits. A more important statement is that patients with contracted kidneys and dilated hearts are remarkably relieved by restricting the fluid they take. Cardio-renal asthma is, he finds, extraordinarily relieved by this method, and the dilatation of the heart is lessened. He adds that in no stage of this disease is the elimination of the important products of tissue change lessened by the restriction of the fluids taken to $1\frac{1}{4}$ litres daily. He bases this statement on long-continued experiments, though he confesses it is opposed to the generally received view that flushing the kidney with water aids the patient.

GEORGE PARKER.

SURGERY.

Catheterisation of the ureters is of extreme value in certain cases, but requires patience and practice in its performance. It probably has dangers of its own, although Casper thinks that with ordinary care the dangers are very few. He has catheterised the ureters over five hundred times without detecting any infection of the kidney thereby. He insists on the necessity of every precaution being taken, and only employing the method when it is really necessary for diagnosis and treatment.[3] David Newman is of opinion that the fullest possible information should be obtained by the cystoscope before resorting to catheterisation of the ureters as a last resort.[4] All are agreed that it should never be done if the bladder be septic.

Catheterisation of the ureters **in the female** has been rendered possible by Kelly's tubes. In a case of pyuria recently under my care, I was able to draw off turbid urine from one ureter which was found to contain tubercle bacilli. Urine from the **other**

[1] *Bull. gen. de Thérap.* [etc.], 1897, cxxxii. 75.
[2] *Internat. M. Mag.*, 1899, viii. 325.
[3] *Brit. M. J.*, 1898, ii. 1412. [4] *Ibid.*, 1411.

kidney was healthy. This proved a certain and only guide, and the corresponding kidney was found to be tuberculous in an early stage. Briefly the method consists in placing the patient in the genu-pectoral position, or the dorsal position with the pelvis well raised, gauging the urethra, passing a speculum of corresponding calibre, deflecting it 30° to one or other side of the middle line, and searching for the ureteral papilla which betrays its position by an intermittent gush of urine. The orifice can be detected by a probe and the ureteral catheter passed in, often several inches and sometimes up to the pelvis of the kidney.

Catheterisation of the ureters **in the male** is beset with many difficulties. Dr. Willy Meyer has done much work in this direction with instruments based on the principle of Nitze's cystoscope, although he prefers Casper's model[1] of ureter-cystoscope. The essentials are, that the urethral calibre must be adequate, the bladder must have a capacity of at least four ounces, and the fluid in the bladder must be and remain perfectly transparent. The patient is made to imbibe freely beforehand to increase the quantity of urine, then the following processes are gone through: (*a*) The bladder is washed out, cocainised and injected with six ounces of clear fluid. (*b*) The instrument is introduced, afterwards fully closing the lid. (*c*) The ureteral opening is approached, letting it appear at the very end of the cystoscopic picture. (*d*) The catheter is pushed forward parallel with the ureter for one or two inches. (*e*) The wire mandrel is withdrawn, and then the urine collected. Casper's cystoscope permits lateral deviation of the ureteral catheter; but a great improvement seems to be effected in Albarran's instrument, in which the projected bent catheter can be flexed or extended, and so insinuated into the ureteral orifice with greater precision.[2] The application by Howard Kelly of his method to the male sex is strikingly novel, and very welcome in the fact that it does away with optical complications[3] which are always fatiguing. The speculum differs from the female type chiefly in its greater length; viz., sixteen centimetres. The patient assumes the knee-chest position after the instrument has been introduced, the penis occupying an attitude of retroversion between the legs. The left forefinger or a speculum is inserted into the rectum to admit air. When the obturator is withdrawn the bladder also fills with air. The ureteral orifices are then inspected and dealt with as in the female. Kelly has devised a mirror on a handle for inspecting the bladder through the speculum, resembling a small laryngoscope mirror.

Analysis of the small quantities of urine obtainable **necessitates special methods.** Dr. Frederic E. Sondern estimates a sample of six cubic centimetres in the following way:—The

[1] *Med. Rec.*, 1897, li. 613.

[2] *Rev. de Gynéc. et de Chir. abd.*, 1897, i. 457; quoted by Valentine, *Med. Rec.*, 1898, liii. 573.

[3] *Ann. Surg.*, 1898, xxvii. 475.

specific gravity is estimated by a Westphal's specific gravity balance, and then the sediment obtained for microscopical and bacteriological examinations by centrifugalisation. One cubic centimetre of the urine is used to test for albumin, and one for the Esbach's test. If albumin be present, the remainder is boiled and filtered. Of the filtrate, one cubic centimetre is used to test for urea, half a cubic centimetre for sugar, and the remainder serves for chlorides and other constituents. Unfortunately the recorded results are discounted by fanciful observation such as "catarrh of the renal pelvis, probably a very moderate pyelitis and the cause of a very moderate renal hyperæmia; moderate chronic cystitis; excessive crystalline deposit, allowing suspicion of renal stone."[1] This method may take as long as two hours to carry out and there appears to be some risk of false passage. One so called "perfectly successful catheterism of both ureters" involved a negative result on one side, and the catheter returned with the tip bent and the eye blocked by a clot.[2]

* * * *

Air-inflation of hollow viscera has been employed in a passive way by Howard Kelly as an essential to his method of cystoscopy, and more recently by others for the active distension of hollow organs:

1. *The Bladder.*—This is passively distended by Kelly's method, both in the male and female, as soon as the obturator is withdrawn. Cystoscopy by straight tubes was employed by Desormeaux in 1865, but the passive air-distension is the special feature of Kelly's method. Active distension of the bladder by air instead of by water has been advocated by Dr. A. T. Bristow[3] and others. Keen first employed the method in 1890. It is claimed that air distension raises the peritoneum from the symphysis at least an inch more than water-distension does. One disadvantage in its employment formerly was the difficulty in estimating the amount of distension. This has been overcome by an ingenious device by Dr. William Jepson.[4] It consists in effect of two graduated bottles, one above the other, with necessary stopcocks. The lower one contains air, and is connected from its upper part by a soft tube to the catheter. The upper bottle contains water, and is connected with the lower bottle by a tube with stopcock. When it is required to distend the bladder with air, water is allowed to flow from the upper to the lower bottle, thus displacing an equal quantity of air into the bladder. The bottles can be raised or lowered to meet hydrostatic requirements. The chief points in this are, that the force is well regulated and perfectly controlled, and the air in the bladder is under a known pressure, but not rigidly confined. This is obviously safer than using a pneumatic bicycle pump, since any extra tension in the bladder expends itself in the column of water above.

[1] Meyer, *Loc. cit.* [2] *N. York M. J.*, 1897, lxv. 324.
[3] *Ann. Surg.*, 1893, xvii. 667. [4] *Ibid.*, 1898, xxviii. 358.

2. *The Rectum.*—Kelly employs passive distensions of the rectum in his method of cystoscopy to depress the base of the bladder. It is particularly important for the male. Active distension was first used by Petersen in 1880 by means of his india-rubber bag, as an adjunct to suprapubic cystotomy. Kelly's tubes are now employed as proctoscopes with passive air-distension of the rectum, and Dr. James Tuttle speaks highly of them.[1] He claims even to have seen twenty to thirty-five inches up the lower gut by their means. By an ingenious method of using the fingers as retractors, combined with passive atmospheric dilatation of the rectum in the knee-chest position, Dr. T. C. Martin states that six or eight inches of the rectum can be easily inspected. The anæsthetised patient is balanced in position by an assistant, while the surgeon closes his fists, crosses his hands, and inserts both index fingers well into the rectum, retracting its walls as far apart as possible.[2]

3. *Gall-bladder.*—Weller Van Hook has recently advocated active air-distension in operations on the gall-bladder and ducts. He fits a nozzle into the gall-bladder, through which he inflates. The air acts as a probe and quickly finds its way into the ducts. It is of advantage in locating the seat of mischief, and subsequently in testing the accuracy of the suturing of the duct.[3]

* * * *

Operative treatment of cirrhosis of the liver. An ingenious and somewhat successful attempt was made in 1896 by Dr. Drummond and Mr. Rutherford Morison, of Newcastle, to re-establish the portal circulation in cirrhosis by obtaining adhesions between the liver, spleen and omentum, and the parietes.[4] This was effected by vigorously rubbing the viscera and parietes with sponges. In one case the operation failed, in another it was very successful. It is premature to indicate the possibilities of this procedure, but of seven published cases two recovered, two were not improved, and three died from shock or sepsis. Weir has gone carefully into the matter, and cites a case, which, however, died on the 5th day from general peritonitis.[5] It appears that Eck, experimenting in 1877, made a series of anastomoses between the portal and systemic circulations in animals: but the results were disastrous, for seven out of the eight animals died within a week of the operation, Moreover, Hahn, repeating the experiments in 1892, found that in animals which survived for a time, the portal blood, passing directly into the systemic circulation, appeared to act as a direct poison, causing excitement, convulsions, coma, and death.

* * * *

The toilet of the peritoneum, essential in its day, has largely given way before a knowledge of the capacity of the peritoneum

[1] *Med. Rec.*, 1898, liii. 527. [2] *Columbus M. J.*, May 17, 1898.
[3] *Ann. Surg.*, 1899, xxix. 137.
[4] *Brit. M. J.*, 1896, ii. 728. [5] *Med. Rec.*, 1899, lv. 149.

for doing its own scavenger's work. Three cases illustrating the remarkable **tolerance of the peritoneum** have been recently recorded. One was that of a boy of 15, who was gored by a bull, about two inches above Poupart's ligament. He arrived six hours afterwards with 1½ ft. of intestine protruding, smeared over with cow-dung, and covered with various leaves. The parts were cleansed, the peritoneal rents sewn up, the intestines returned and less than three weeks afterwards the lad went home cured.[1] A similar case is that of a woman aged 42 years, who was tossed by a cow early one evening and seen several hours afterwards. Some twenty feet of intestine were protruding from the wound, and when they were returned she expressed herself as better, "now her bowels were in their places again." The wound united by first intention, the temperature never reached 100° and she got up in less than a month.[2] The third case concerned a dissolute married woman of 29. A year previously she had had an abdominal operation preformed, and now the surgeon was sent for as she had "burst" in one of the slums. The surgeon regarded this with such incredulity that he did not visit her till the afternoon of the next day, when he found the woman lying on the floor in the corner of a common living room amongst a heap of straw and filthy rags. She had indeed "burst," and in front of her was a heap of small intestines which had remained amongst the straw and dirt for twenty-four hours. The bowels were washed with ordinary water drawn from a neighbouring tap, the guts were returned and a drainage-tube placed in the lower angle of the wound. She made a rapid and uninterrupted recovery and remained free from recurrence of hernia for years.[3]

* * * *

The great disadvantage of various bobbins and buttons for **intestinal anastomosis** is that they remain *in situ*, as foreign bodies, for some time after the operation. Dr. Laplace has recently introduced ingenious forceps, by which the advantages of a bobbin or button are secured as regards facility of suture, and those of simple suture by their immediate removal at the end of the operation.[4] The forceps combine to make two handled rings which are introduced into the intestine to be anastomosed, for fixation and support. Each part is separable into two halves so as to be extricated just before completion of suturing. A new feature thus introduced is the control of the operation given by means of the handles. The forceps are duplex, consisting of a semicircle on each half but when locked together they open as two rings, very much like a pair of tongue forceps. Thus, after completion of suturing, the clamp on the forceps is removed, four sickle-shaped pieces have to be taken out and the site they occupied sutured.

[1] *Brit. M. J.*, 1898, ii. 897. [2] *Lancet*, 1899, i. 290.
[3] *Ibid.*, 1898, ii. 74. [4] *Ann. Surg.*, 1899, xxix. 297.

One ring of the forceps is inserted into the gut above, another into the gut below, and they are then approximated. The suturing is carried out with ease, and before the final stitch is tied the portions of the forceps are removed. The instrument is made in five sizes, the smallest being suitable for gall-bladder surgery. By its means end-to-end or lateral anastomosis, and also invagination, may be rapidly performed.

THOMAS CARWARDINE.

DERMATOLOGY.

At a debate of the Dermatological Society of London, November 9th, 1898, on **general exfoliative dermatitis or pityriasis rubra**, Dr. Walter G. Smith[1] said that in regard to nomenclature, etymology is a fallible guide in medical terminology, and he did not think it mattered much whether we choose to call it exfoliative dermatitis or pityriasis rubra, except that it would be well we should all agree, for convenience of reference, to adhere to the one designation, and the former term seems likely to prevail. Intense vivid redness he considers to be one of its most distinctive features; yet just as a zoologist finds no difficulty in acknowledging a white blackbird, so the dermatologist need not stumble at a white pityriasis rubra. Dr. Walter Smith is not aware that any important blood-changes have been made out in connection with dermatitis exfoliativa, although pseudo-leukæmia has been noted. Nor has the disease been proved to be due to a microbe, so we are left to mere conjecture. It has been suggested, especially by Mr. Hutchinson, that pityriasis rubra and other generalised forms of dermatitis are **etiologically related to the nervous system**, and may, in fact, be regarded as neuroses. In support of this view Mr. Hutchinson adduces the occurrence of joint-pains in many cases in the early stage, the occurrence of coma in one patient, and the fact that intolerable itching in the middle of the back ushered in the eruption in several cases. Hebra invokes the convenient hypothesis of vaso-motor disturbance. Dr. Crocker makes out a stronger case for association with rheumatism. He, by-the-by, prefers the term pityriasis rubra as being the original name, and thinks it better policy to stick to the old labels than to use new ones. He considered that pityriasis rubra represented a well-defined group of symptoms which might **develop primarily, or secondarily,** to some antecedent form of dermatitis, and that when the secondary cases were fully developed they were practically identical in their symptomology and course with the primary cases. The secondary cases might supervene not only upon almost any form of dermatitis, such as psoriasis, eczema, seborrhœic eczema, and lichen planus, in that order of frequency, but also, after the application of irritants to the skin, such as

[1] *Brit. J. Dermat.*, 1898, x. 437.

chrysarobin, arnica, and mercury. In the early days of the century, when mercurial inunction was used in a wholesale manner, this complication was not very rare. Clinically, many of the cases of the epidemic form described by Savill were indistinguishable from the non-contagious and classical form, and it showed that the presence of a special microbe was capable of producing the disease in some cases. Dr. Crocker had seen two cases in association with insanity, and he asked the members of the Society if they had had a corresponding experience. Dr. Walter Smith said that if dermatitis exfoliativa is recognised as a primary affection, and also as following upon such different affections as eczema, psoriasis, erythemata, lichen ruber, erysipelas, dermatitis herpetiformis, pemphigus, and perhaps, in children, syphilis, and if, further, it is allowed that this condition may be started by strong external irritants, and perhaps by internal remedies, *e.g.* chloralamide,[1] then in the absence of any uniform etiological factor, it is more rational to consider it as an accidental phenomenon, or as an evolution of some other affection, rather than an independent entity. Pityriasis rubra has been observed to supervene upon psoriasis, and when the pityriasis rubra got well the psoriasis resumed its normal course. As to frequency of primary and secondary cases of exfoliative dermatitis, Stephen Mackenzie's statistics give a nearly equal frequency (eleven primary and ten secondary). Moreover, although the first attack may be plainly secondary to some existing cause, yet it may be impossible to discover any adequate cause for subsequent recurrences. Dr. Smith considers that no certain boundary line can as yet be drawn between acute general eczema—possibly, also psoriasis—and exfoliative dermatitis. Dr. Galloway believes the secondary forms of the disease most commonly succeed psoriasis, and he considered that there was some danger in producing this grave secondary state by over-medication. He thought the histological alterations were distinctive, although they did not throw much light on the pathology of the disease, except to emphasise, what was pretty clear from clinical observation, that the poison which caused the disease was from within and not from without. Dr. J. J. Pringle's remarks pointed strongly towards the probability of the existence of **changes in the central nervous system,** possibly of toxæmic origin, as the determining factor in the production of general exfoliative dermatitis. These were: (1) the frequently neurotic character of the persons attacked; (2) the rapidity with which the condition develops and generalises itself; (3) the prominence of extreme itching, insomnia, and insanity among the leading symptoms; (4) the marked susceptibility to changes of temperature, and the instability of the peripheral circulation; (5) the remarkable changes occurring in the skin appendages—hair and nails. He considered that the prominent

[1] Pye-Smith, *Guy's Hosp. Rep.*, 1877, 3rd Ser., xxii. 151; 1881, 3rd Ser., xxv. 205.

rôle played by alcohol, at all events as a predisposing cause, had been generally underestimated, and that the existence of **albuminuria** always constituted a grave complication. As to treatment, arsenic was deleterious in the early stages of the disease, and he suspected that it was often responsible for its supervention upon cases of psoriasis. Dr. Leslie Roberts thought that the process of dermatitis exfoliativa was not purely ectodermal, but rather a neuro-ectodermal process in which the sensitive matter of the cerebro-spinal axis operated with or upon the epithelium and underlying vessels and nerves. He had come to this conclusion after careful consideration of certain clinical and histological facts; to wit, the almost startling suddenness with which the entire epidermis became altered in character, the predominance of nervous complications in the course of the disease, and the very characteristic inward growths of the epithelial cones. He considered that the morbid epithelial changes in dermatitis exfoliativa were certainly under some powerful nerve-influence; but he could not say, in the light of present evidence, how this influence occurs. Mr. Malcolm Morris thought the disease was peculiar for the reason that, in spite of the great redness and desquamation present, there was an entire absence of thickening; indeed there seemed to be rather an atrophy of the corium present, as shown by a slight thinning of the skin when picked up between the fingers. He considered that the presence of albumin in the urine was a factor justifying the utmost caution in regard to prognosis, and that in his experience such cases were often fatal.[1]

* * * *

Pityriasis rosea, though a comparatively rare disease, occurs more frequently than is generally supposed, for cases are often overlooked or incorrectly diagnosed. A typical case runs a very clear and definite course. Without any previous symptoms, there appears on the trunk, somewhere in the region of the waist, as the "herald" of the disease, a reddish-yellow spot which expands into a patch, circular in form, very little elevated, with a rosy-red border and a yellow centre. The shade of yellow which forms the centre is sometimes described as fawn-coloured; frequently it very closely resembles the colour of chamois leather. Often enough this patch is entirely overlooked, and the first the patient knows of the disease is about a week later, when the whole trunk is covered with a profuse eruption of spots similar in nature to, though smaller in size than, the original one. All do not expand into circles; many remain as spots, and to this variety of the disease the name pityriasis rosea **maculata** is applied. When they do expand into circles, the adjective **circinata** is employed instead. Too much stress must not be placed on the identification of the "herald"

[1] *Brit. J. Dermat.*, 1898, x. 463.

patch; in the majority of cases it is not discoverable. The eruption is almost limited to the trunk. A few spots may be found about the shoulders, and a few on the thighs; but it is rare on the face and on the distal ends of the limbs, though it may be limited to them. In spite of the name, there is not often much scaliness. After a duration of from five to eight weeks the eruption gradually disappears. The cause of the disease is unknown. No organisms have been found which could be definitely associated with it. Dr. Norman Walker gives[1] a picture which is an admirable illustration of this disease.

The numerous reports from foreign sources which ascribe to the **X-ray therapeutic properties,** and give the results produced in cases of cancer and lupus vulgaris, and also claim for it a retarding action upon the growth of bacteriological cultures, have led Dr. Charles Leonard to study the electrical conditions present in order to determine whether the results obtained cannot be more reasonably explained by the action of physical and physiological forces the properties of which are perfectly known and understood. His conclusions are that the X-ray "burn" is not the result of the action of the X-ray, but the dermatitis produced is the result of the static currents or charges induced in the tissues by the high-potential induction field surrounding the X-ray tube. The therapeutic properties attributed to the X-ray do not belong to it, but are due to the static charges and currents induced in the tissues, which have long been known to be capable of producing similar results.

The dermatitis, which has been called an X-ray "burn," is the result of an interference with the nutrition of the part by the induced static charges. The patient may be absolutely protected from the harmful effects of this static charge by the interposition between the tube and the patient of a grounded sheet of conducting material that is readily penetrable by the X-ray; a thin sheet of aluminium or gold-leaf spread upon cardboard is an effectual shield.[2]

Dr. S. Pollitzer, of New York, says[3] that the peculiar yellow plaques and nodules in the skin known as **xanthoma** have been the subject of extensive studies on the part of pathologists and dermatologists, ever since they were first described by Addison and Gull in 1850. The greatest diversity of opinion exists as to their nature. The clinical grounds for separating xanthoma of the eyelids from multiple xanthoma are as follows: The nodules of xanthoma multiplex are firm, round, elevated papules; the patches of eyelid xanthoma are soft plaques on the level of the skin. Eyelid xanthoma persists through life; multiple xanthoma sooner or later undergoes involution. Eyelid xanthoma is quite common; multiple xanthoma is extremely rare. If the eyelids were in this preponderating degree the seat of predilection for a common xanthoma, we should expect to

[1] *An Introduction to Dermatology*, 1899. [2] *N. York M. J.*, 1898, lxviii. 18.
[3] *Tr. Am. Dermat. Ass.*, 1897, 21.

find the eyelids affected in every case of multiple xanthoma; but, as a matter of fact, the two forms are rarely associated in the same individual. The author has been able to show that common eyelid xanthoma is not a new growth, but is due to a degeneration of pre-existing embryonally misplaced muscular tissue. The so-called xanthoma cell is a fragmented muscle fibre in a state of granulo-fatty degeneration, with proliferation of the muscle-nuclei. This explanation of the origin of eyelid xanthoma harmonises with a number of hitherto unexplained clinical and pathological facts, *e.g.* the absence of any clinical signs of tumour; its almost exclusive occurrence in the face, where peculiar muscular conditions prevail; its heredity; its usual development after middle age, when degenerative processes are apt to occur; the peculiar yellow pigment that is always present in muscles undergoing fatty degeneration, etc. The structure of multiple xanthoma is shown to be wholly different from that of eyelid xanthoma. It forms a sharply circumscribed tumour in the cutis. It is an irritative hyperplastic development of connective tissue, whose cells produce fibrous tissue on the one hand, or undergo fatty degeneration on the other. In diabetic xanthoma the process is a little more diffuse and the tendency towards fatty degeneration more marked. In both, irregular patches of granulo-fatty matter, interspersed with cellular detritus, occur in the middle of the nodules as the results of the fatty degeneration of the cells. In over 85 per cent. of the recorded cases of multiple xanthoma, far too large a number to be accounted a mere chance, there was either diabetes or some severe lesion of the liver with jaundice. The author thinks it likely that research may show that the fibrous nodes and fusiform enlargements of tendons in chronic rheumatism are to be placed in the same general class as the nodes of xanthoma. We should then have a large group of diseases, hepatic, diabetic, rheumatic, all characterised by toxæmic conditions, in all of which irritative connective-tissue lesions occur in the skin and elsewhere. At one end of this series we should have the persistent fibrous node of rheumatism; at the other, the transient nodules of diabetic xanthoma, while between them, intermediate in its tendency toward the formation of fibrous tissue and fatty degeneration, ultimately undergoing involution, would stand the nodule of common multiple xanthoma.

HENRY WALDO.

Reviews of Books.

Charles Darwin and the Theory of Natural Selection. By Edward B. Poulton, F.R.S. Pp. 224. London: Cassell and Company, Limited. 1896.

An American naturalist has well described this little book as one of the minor classics of evolutional literature. Admirable in its clearness and lucidity, admirable in the evolution of its evolutionary theme, admirable in its portrayal not only of the central figure but of his environment, it is above all admirable in the skill with which it depicts the combined insight and patience, breadth of view and minute attention to detail, strength of intellect and lovable simpleness of character, perseverance and strength of will in one who for long had every excuse to be a confirmed invalid, which characterise Charles Darwin. Professor Poulton's book should appeal not only to biologists, but to all who would gain strength and inspiration from the life-work of a man of whom England may well be proud.

Darwin's relations to Mr. Alfred Russel Wallace afford a lesson which smaller men might do well to lay to heart. Inspired by the work of Malthus on Population, Darwin brooded over the subject of competition and struggle for existence for twenty years; he pondered over the store of facts he had amassed during the voyage of *The Beagle*, ransacked the literature of natural history, tested everything by observation and experiment, discussed the developing theory of natural selection with a few chosen friends such as Lyell and Sir Joseph Hooker, and still refrained from publishing. Mr. Wallace, inspired by the germinal idea derived from the same source, thought out the whole of his theory in a couple of hours, and completed his essay in three days. It was sent to Darwin with the request that if he thought well of it he should send it to Lyell for perusal. Through the urgent persuasion of Lyell and Hooker, Darwin was induced to publish, at the same time as Mr. Wallace's essay, an abstract of his views, together with a letter to Asa Gray in which they were summarised. "I was," he says, "at first unwilling to consent, as I thought Mr. Wallace might consider my doing so unjustifiable, for I did not then know how generous and noble was his disposition." May we not regard with pride these two great men—for Mr. Wallace is great with another greatness—for whom such an incident was not a nucleus of jealousy and bitterness, for it laid the foundations of a life-long friendship, strengthened by mutual confidence and esteem?

Alike to those who know their Darwinian literature and have read Mr. Francis Darwin's worthy life of his father, and to those who desire a short but sufficient sketch in clear

perspective, we recommend Professor Poulton's book, confident that they will not be disappointed and that they will endorse our high opinion of its merits.

A Manual of the Practice of Medicine. By FREDERICK TAYLOR, M.D. Fifth Edition. Pp. xvi., 1002. London: J. & A. Churchill. 1898.

This popular text-book has been carefully revised, some sections have been largely re-written, and notices of many diseases have been added. Amongst the newest chapters are those on glandular fever, divers' paralysis, erythromelalgia, angeio-neurotic œdema, hypertrophic pulmonary osteo-arthropathy, and tubercle of the skin. A separate section is devoted to diseases of the mediastinum; and filarial disease and hæmoglobinuria have been transferred to diseases of the lymphatic system and of the blood respectively. It is difficult to compress the facts of medicine within the limits of a volume such as this, but the issue of five editions in eight years shows that the attempt has been much appreciated.

Contributions to Clinical Medicine. By T. M'CALL ANDERSON, M.D. Edited by JAMES HINSHELWOOD, M.D. Pp. x., 415. Edinburgh: Young J. Pentland. 1898.

One who has been a hospital physician and clinical teacher for upwards of a quarter of a century must always have something worth relating. This volume will be specially welcome to Dr. M'Call Anderson's old students. Some of the papers are a little scrappy, and some rather old; but they are of world-wide interest, and they are all presented in good form, well printed on thick paper, easy to read, and well worthy of any time which may be spent upon them.

Die Störungen des Verdauungsapparates als Ursache und Folge anderer Erkrankungen. Von Dr. HANS HERZ. Pp. xviii., 543. Berlin: S. Karger. 1898.

The plan of this book is original, and we know of no work in English that covers exactly the same ground. The author's idea is to consider the disorders of the alimentary tract and its accessory glands as they occur in the course of general diseases and of diseases of other organs. In this way a broad general view may be arrived at of the modes in which the digestive apparatus is affected in diseases which have no causal connection with it. At the same time the reverse of the picture is taken into view, and the digestive organs considered as the seat of origin of disease. Thus throughout the volume two points of view are

consistently regarded: firstly, the alimentary tract considered as the primary seat of each disease or group of diseases; and secondly, the secondary disturbances of this tract which occur in the same diseases when they own another source of origin. We may take the acute infectious diseases as an example. The share of the digestive tract in the etiology of these diseases is first discussed, with an appendix on the occurrence of fever in disorders of the alimentary canal, and then the secondary disturbances of this tract which occur in the course of these fevers are systematically described and grouped under the heads of symptoms referable to the mouth, pharynx, stomach, intestines, liver, spleen, pancreas, peritoneum, and mesenteric glands. Again, in syphilis and tuberculosis the clinical and pathological history is given of the cases in which these infections obtain entrance to the system through the alimentary canal, and then of the secondary disturbances of the latter when an entrance of the poison is gained through some other channel.

The author points out that although much has been and is still to be gained by differentiation and distinction in the consideration of diseases, less has been done—and there is probably almost as much information to be gathered—by putting together like things. His book is to be regarded as an effort in this direction, a contribution to homogeneity in medicine, an example of how light may be thrown on obscure processes of disease in one system of organs by comparing their disorders as they occur in different diseases. Nor is it to be supposed, and the work under notice is a striking example to the contrary, that such a consideration of the disorders of one system by itself must necessarily lead to a narrow specialism, to a limited grasp or one-sided view of the problems of medicine. Rather the effect should be to widen and enlarge one's ideas, for in this particular instance of the digestive system, as one reads on one realises with increasing force how intimately this system is bound up with the rest, and how impossible it is to treat its disorders scientifically without a full appreciation of the mutual interdependence of organs upon each other, and of the fact that no one system can be disturbed without affecting to a greater or less degree every other; that, in clinical language, the patient and not the disease is to be treated.

Enough has been said to show that this book is written in a scientific spirit, and approaches its subject from an aspect that is novel and capable of throwing new light upon what may be already familiar to the reader. But in addition there must be very much that is actually fresh to most readers, and more that is new in the sense that it is now first collected in a readily accessible form. Obviously the labour of writing a book dealing with diseases of the digestive apparatus on such a plan must be very great, and the author displays in the prosecution of it immense erudition and research. When we consider the extensive literature of the primary digestive disorders by themselves alone,

and then that of the secondary disorders as met with in all other diseases, we can appreciate the magnitude of the task. So far as we have been able to ascertain, the author has carried out his plan remarkably well, and his work is a storehouse of recorded facts and observations on the pathology and symptoms of every affection of the alimentary tract. It thus forms a valuable work of reference which contains a quantity of information that otherwise would have to be laboriously sought out in scattered papers. Not that we mean to imply that the book is a mere compilation; far from it,—it is written with critical insight, and bears the stamp of experience and sound judgment. There is one point on which we disagree with the author; in his preface, he states that he considers an index unnecessary, as he has given a very full table of contents. We think, however, that to bring out the full value of his book as a work of reference, it requires a copious index as well.

Diseases of the Heart and Aorta. By GEORGE ALEXANDER GIBSON, M.D. Pp. xx., 932. Edinburgh: Young J. Pentland. 1898.

A mastery of all that it seems capable of knowing in connection with diseases of the heart is displayed in this admirable treatise. A reference to standard works for information on some particular point as often as not fails to give satisfactory aid. In this book, however, we consider that not only knowledge, but exceptional judgment has been displayed. The mass of facts the book contains has been most ably handled, and rarely have we been disappointed in search for fresh light on a subject, or felt disposed to criticise where there is a summary of varied opinions.

One will always find points of minor importance with which one may not fully agree, such as the statement that when myocarditis is associated with pericarditis, "only the superficial layers of the heart" are affected. On two occasions during the past year we have seen myocarditis associated with rheumatic pericarditis extending through the wall of the left ventricle to the endocardial surface, where in one instance the speckled appearance produced by the degenerative changes was very marked. We refer to this point, because the subject of the power of rheumatism to attack the heart-muscle has recently been brought into prominence. We do not consider myocarditis associated with pericarditis to be due to direct spread of the inflammation from the pericardium inwards.

The varied aspects of disease are so numerous, that it must be rare to find descriptions that fully satisfy all observers. Dr. Gibson's book, however, seems to us to be as infallible as it is possible for a work of the kind to be.

The Cold-Bath Treatment of Typhoid Fever. By F. E. HARE, M.D. Pp. xii., 196. London: Macmillan and Co., Limited. 1898.

It seems remarkable that the medical profession of this country should be charged with inertia, because the cold-bath treatment which has been in vogue for some thirty years should not be universally adopted. It is true, as Dr. Hare remarks, that the difficulties in the systematic adoption of the method have been greatly exaggerated; the plan of procedure which he describes (page 18) makes the whole thing easy for hospital wards, and there can be no reason why the bath should not be of far more general use if its absolute necessity is demonstrated. There are, however, other antipyretic methods, and it is only occasionally that the bath has to take precedence of these.

In a consecutive series of 1902 cases treated at the Brisbane Hospital in Queensland, Dr. Hare claims to have reduced the mortality from 14.8 per cent. in the years 1882 to 1886, to an average of 7.5 per cent. for the years 1887 to 1896, an improvement amounting practically to 50 per cent. This result harmonises with Osler's dictum: "The cold-bath treatment, rigidly enforced, appears to save from six to eight in each century of typhoid patients admitted to the care of the hospital physician." Any fallacies which tend to inhere in an enquiry of this sort are as far as possible minimised or eliminated, and it is argued by the author that the difference in mortality for the two periods is not due to any other accidental variations, but simply and entirely to the systematic use of cold bathing. We congratulate the author on his persistent and successful efforts.

Clinical Lectures on Mental Diseases. By T. S. CLOUSTON, M.D. Fifth Edition. Pp. xii., 727. London: J. & A. Churchill. 1898.

We know of no book which better deserves its popularity than this one. Designed as a clinical manual for students of mental diseases and general practitioners, the book forbears intimate discussion on many vexed questions, and hence does not invite, in greater part, the criticism which awaits the propounder of hypotheses. The author has advanced, almost of necessity, certain assumptions which may invite discussion amongst his fellow-alienists; but it would be straining the function of criticism to raise this here whilst there is so much matter of the highest value to receive comment; it should be said, that to no debatable opinions of his own does Dr. Clouston give undue or misleading prominence.

There is evidence in this work of acute observation, large and shrewd views of sane as of insane humanity, unsurpassed experience and versatility of treatment. In our opinion no modern

physician has better conceived and practised, in its widest sense, the treatment of insanity; from the aspect of therapeusis alone the book is of great worth. Exceptional, too, are the powers of graphic description, of harmonious groupings of varied clinical pictures, and of sound generalisation, and as the result there is aroused a vivid interest in the cases described. Of especial utility will be found the sections relating to the examination and certification of persons of unsound mind, together with the various contingencies arising in connection with these procedures.

This edition has received important addition in the excellent plates and descriptive letter-press which demonstrate some most recent processes in microscopic technique. In short, anyone who digests this book will have acquired a valuable knowledge of the clinical aspects of insanity, and despite the endless variety of these will always find typical descriptions, ripe experience, and happy suggestions to guide him.

A Manual of Modern Surgery. By JOHN CHALMERS DACOSTA, M.D. [Second Edition.] Pp. 911. London: Henry Kimpton. 1898.

In the new edition of this book no attempt has been made to alter the character or to change the purpose of the manual, about which we have already spoken favourably. Some new articles have been added and many of the former ones enlarged or otherwise altered to meet modern requirements. Among them may be mentioned the following: Sections have been added upon the surgery of the liver and gall-bladder, wounds inflicted by modern projectiles, and the use of the Röntgen rays. The following modern operations have been described: Resection of the Gasserian ganglion, methods of gastrostomy, use of the Murphy button, various modern operations upon the intestines, &c., &c. All of these have been well done, and, so far as was possible in the limited space, they have been fully described. The style of the author is simple and unpretentious, and he has succeeded in producing a handy volume which well meets the requirements of students reading for examination or practitioners wishing to refresh their knowledge.

On the Origin and Progress of Renal Surgery. By HENRY MORRIS, M.B. Pp. viii., 288. London Cassell and Company, Limited. 1898.

The Hunterian Lectures which Mr. Morris delivered in 1898 form the greater portion of this admirable volume, which is about equally divided between descriptive matter and tabulations of cases. It is impossible to praise too highly this masterly exposition of the recent advances in renal surgery, which is embellished by excellent figures. It is indicative of an immense

amount of labour and research, as well as of personal experience. Although every section is of importance to the surgeon, that dealing with the surgery of the ureter is particularly so, since it emphasises the most important of recent advances. The Heinecke-Mikulicz suture for the relief of ureteral stricture, and the methods of ureteral anastomosis, are deserving of careful study.

Mr. Morris's theory, like his practice, is of a distinctly conservative type; and as he was one of the pioneers in boldly attacking the kidney, so he is the foremost in advocating conservative methods. Surgeons and patients will alike benefit from a study of the work.

Traumatic Separation of the Epiphyses. By JOHN POLAND. Pp. xxxi., 926. London: Smith, Elder, & Co. 1898.

This is a most exhaustive treatise, and is the result of investigations by the author, which have been carried on for many years, both in clinical and in anatomical work. We could not have imagined that so large a book could have been written on the subject. It is one to which all surgeons may from time to time turn for information, if they suspect the injury from which their patient suffers to be of this nature, and they will certainly not be disappointed by the information they will receive. Illustrations are very abundant, and most of them very good, and there can hardly have been a book yet published with so many illustrations of skiagrams. Some of these are very clear, but in a few we must say we fail to see a demonstration of the lesion. We would suggest to the author that a series of skiagrams of the normal epiphyses of all the bones of the extremities would be a very valuable addition to the next edition of the book, for in skiagraphic work the picture of a normal part is of very great assistance. Nineteen skiagrams of the normal epiphyses of the hand and wrist at various ages are given, and one or two of each of the long bones would be a great gain. The author first considers traumatic separation of the epiphyses in general, and then describes in a most thorough way the pathology, signs, and treatment of those lesions in the various bones. He has collected an enormous number of cases to illustrate the subject.

The book is issued in a state of magnificence that has rarely been equalled in medical work, and we feel sure that it will be the standard English work on the subject; our knowledge regarding it has been very greatly increased by the author.

Tropical Diseases. By PATRICK MANSON, M.D. Pp. xvi., 607. London: Cassell and Company, Limited. 1898.

This manual covers the whole field of the diseases of warm climates, and is of an eminently practical nature. Chapters

are devoted to fevers, diseases of undetermined nature, abdominal diseases, infective granulomatous diseases, animal parasites, skin diseases, and local diseases of uncertain nature, such as goundou and ainhum. The subject of malaria is dealt with most fully and successfully. With regard to the part played by the mosquito in the etiology of malarial infection Dr. Manson, whilst not accepting the theory as proved, recognises its importance, and thinks that every effort should be made to establish or confute it. Hæmoglobinuric fever, concerning the etiology of which there has been much discussion, will, Dr. Manson thinks, be found to be dependent on a form of malarial parasite peculiar to itself. The book is profusely illustrated, and the coloured plates of the malaria parasites are very finely executed. We can recommend the work to all students and teachers of tropical medicine.

An Atlas of Bacteriology. By CHAS. SLATER, M.B., and EDMUND J. SPITTA. Pp. xiv., 120. London: The Scientific Press, Limited. 1898.

The value of this excellent book, which consists, in addition to its pages of letterpress, of a collection of one hundred and eleven full-page original photo-micrographs, is much enhanced by the brief introductory description of the method by which the pictures have been produced, a method which is in complete accord with the published experience of some of the most accomplished operators in this field of work. The saving of time, labour, and money resulting from the immediate possession of a knowledge of the best available means of obtaining satisfactory representations of the bacteria will render the acquisition of this volume a very profitable transaction on the part of anyone entering upon this fascinating study, although some acquaintance with the manipulation of microscope and camera will be required to put into practice the terse directions of the authors.

The perfection of the methods adopted is best attested by the beauty of the pictures, the truthfulness of which makes them very valuable companions to the text-book. A word of commendation is also due to the short descriptions of the organisms which accompany the illustrations, and which, without being overloaded with detail, furnish a fairly complete account of the leading features of the various species.

Ueber die Wirkung des neuen Tuberkulins TR auf Gewebe und Tuberkelbacillen. Von Dr. H. STROEBE. Pp. 114. Jena: Gustav Fischer. 1898.

Although the practical results of this last tuberculin have been hitherto almost *nil*, we welcome the record of Dr. Stroebe's

careful investigations on its true properties and reactions. If any progress is to be made in applying this and similar remedies to the cure of human and animal tuberculosis, or in preventing its spread, the result can only be obtained by an exact study of its effects.

We find here details of researches on healthy and tubercular animals, and on the degree of immunity conferred by the new remedy; and if the results, both in the way of cure or in the production of immunity, are directly opposed to those of Koch, the sooner a dangerous treatment is abolished the better. The writer, we may remark, obtained in no case a complete cure of experimental tuberculosis in guinea-pigs by the use of the tuberculin, and he seems likewise to have failed to produce immunity by its means. He gives also a review of some of the chief investigations which have lately appeared, and of the controversy arising from them.

The Ferment Treatment of Cancer and Tuberculosis. By HORACE MANDERS, M.D. Pp. xix., 251. London: The Rebman Publishing Co., Limited. 1898.

Giving a clear exposition of a fresh development of therapeutics, this book brings forward certain new and important facts. It explains thoroughly the treatment of various diseases by "pure ferments," and the *rationale* of it; but it is disfigured by too much padding *de omnibus rebus et multis aliis*. If we had been spared thirty pages on cells and bacteria, twenty-eight on the pathology of tuberculosis, with the symptoms and modes of infection, and a vast amount of information easily obtainable from text-books, but having no connection with the subject, the interest of the book would have been greater, for in its main thesis it is sound.

The chief practical result so far of bacteriology has been serum-treatment. Dr. Manders shows that there is another, the ultimate importance of which may be far greater. Living yeasts act as phagocytes and destroy pathological bacilli. He shows that absolutely pure yeasts can be introduced into the human body, and can multiply there for a time without injury, causing leucocytosis, converting some of the sugar derivatives into alcohol (which he has measured so far as excreted by the lungs) and destroying certain pathological bacteria. Thus in phthisis the cells may be found in the expectoration enclosing degenerate bacilli. Of these important facts he gives convincing proofs; and, in addition, he believes that the cells, having done their work, are of nutrient value, supplying nuclein, succinic acid, and certain mineral substances.

Dr. Manders employs the pure yeast or backérine as a hypodermic injection, as a powder upon ulcers, and occasionally by the mouth, rectum, or as a spray for diphtheritic throats. The hypodermic dose is 1 c.c. at intervals of a week or longer.

There is a sharp reaction followed by improved appetite, and in phthisis a diminution of bacilli and night-sweats with general improvement. Yeast seems to inhibit altogether the growth of the typhoid bacillus *in vitro*, and it has been used with some benefit in typhoid fever. In future papers the writer promises abstracts of the cases of phthisis, typhoid, and septicæmia in which he has used it with advantage. We hope his materials will be put together in a better form. The method deserves careful examination and testing.

Operative Gynecology. By HOWARD A. KELLY, M.D. Vol. I., pp. xvii., 563. Vol. II., pp. xiii., 557. London: Henry Kimpton. 1898.

We have frequently in these columns expressed our admiration of the work of those associated with the Johns Hopkins Hospital, and Dr. Kelly's admirable book reflects the highest credit upon himself and the institution with which he is connected. The object of the writer has been to set forward his own experiences, and to record those methods of procedure which he has found to be trustworthy and best, and we hail with the greatest satisfaction the ability to read for ourselves the masterly exposition of one so famed in the gynæcological world as the author. The work is large, but a considerable amount of space is occupied by the twenty-four plates and five hundred and fifty original illustrations with which it is embellished. Of the letterpress as a whole we may say at once that it is clear and incisive, and free from verbiage, carrying its own conviction as the work of one whose experience and judgment are of the highest order. The illustrations too are masterpieces of execution, and render the book one of the most beautifully adorned works of its kind.

In the first volume, the three opening chapters deal mainly with the question of sepsis, antisepsis, and bacteriology. Every detail of the disinfection of the patient, surgeon, and appliances is carefully described, and a brief account is given of the chief organisms (and the methods of staining them) met with in gynæcological practice. For disinfection of the hands before operation the author prefers the use of permanganate of potash and oxalic acid. Then follow chapters on topographical anatomy, the method of making a gynæcological examination, the use of local and general anæsthesia, and the general principles involved in plastic operations.

Chapter IX. treats of diseases of the external genitals, and several plastic operations for the removal of large portions of these parts for tubercular disease, pruritus vulvæ, &c., are described. The plastic art of the surgeon is still further brought out in Chapter X., which deals with rupture of the recto-vaginal septum and relaxed vaginal outlet, and here we can find a lucid account of the true principles underlying a successful operation for these conditions

—an operation which has suffered much from the incorrect and unintelligible descriptions which are often met with. Operations on the vagina is the subject of Chapter XI., the most important being those necessary for traumatic affections as the result of injuries incurred in labour. Chapter XII. treats of affections of the urethra and bladder, and Chapter XIII. of affections of the ureters, and it is in the diagnosis of these conditions in the female that Dr. Kelly has worked so laboriously and successfully in perfecting his methods, which are universally recognised to be of the greatest value. These methods, which have long been known from his other writings, have been largely instrumental in making a reputation which is world-wide and well-deserved. In connection with large vesico-vaginal fistulæ, we are glad to see that the author regards the operation of kolpokleisis as a thing of the past. The final chapters (XIV.—XIX.) deal with operations upon the cervix of the uterus, including dilatation and curettage; prolapse of the uterus; vaginal hysterectomy; vaginal extirpation of submucous myomata and polypi; and certain conditions in which the uterus acts as a retention-cyst. The account of the examination of uterine scrapings after curettage bears witness to the care and exactness with which Dr. Kelly's work is performed. We regret that nothing is said of the results of vaginal hysterectomy for cancer, for the author's large experience and opinion would have been of great value in estimating the much-discussed value of this operation.

The second volume opens (Chapters XX.—XXII.) with an account of the general principles and complications common to abdominal operations; the care of wound and patient up to recovery; and complications arising after abdominal operations. These chapters deal in a most complete manner with the subjects of which they treat, and give much reason for reflection, and, if space permitted, for discussion also. Each surgeon doubtless falls into certain routine treatment in the after-management of abdominal sections, and consequently the practice of others may appear to be wanting in certain ways. Hence we feel disposed to point out the great value which we attach to the treatment of tympanites by turpentine enemata, and to the use of strapping over the dressings to support the abdominal muscles as it were in a splint, neither of which appears to find a place in the author's practice. Of still greater importance, however, is it for us to raise a protest against the restriction of all fluids by the mouth for the first twelve hours or more after operation. This would seem, in face of the intense thirst which often exists, to amount to an unnecessary piece of torture (the word is not too strong in many instances), for we have long been in the habit of allowing tablespoonful doses of hot water at frequent intervals, and can unhesitatingly say that we have never known it productive of harm. Chapter XXIII. deals with tubercular peritonitis, and we note with satisfaction

that the author agrees in abandoning all drainage in these cases. In Chapter XXIV. the author describes his method of suspension of the uterus by attaching the posterior surface of the uterus to the abdominal wall, and though we cannot accept this as the best operation, we would admit that the author's experience has shown that it is less open to objection than many others. Chapter XXV. treats of conservative operations on the tubes and ovaries. This is one of the signs of the times, and is an important contribution to the subject which all operating surgeons would do well to consider. Salpingo-oöphorectomy is considered in Chapter XXVI.; vaginal drainage and enucleation for pyo-salpinx, &c., in Chapter XXVII., and abdominal hystero-salpingo-oöphorectomy in Chapter XXVIII. To those who are not familiar with the life-saving advantages of vaginal drainage in certain cases, this portion of the book may be commended. Ovariotomy is the subject of Chapter XXIX., and abdominal hysterectomy for carcinoma of the uterus is the subject of Chapter XXX. In the latter chapter the author gives excellent reasons for his preference for the abdominal rather than the vaginal route, and after giving certain rules for the prevention of cancer, he says: "If these rules were conscientiously observed, there can be no doubt but that thousands of lives would be saved yearly in this country alone,"—a statement which amounts to a grave (and not altogether undeserved) indictment against both the profession and the public which it is well that both should consider. Chapter XXXI. gives an account of myomectomy, and hystero-myomectomy, and the latter operation is confined to the retro-peritoneal method. Chapters XXXII.—XXXIV. are taken up with operations during pregnancy, Cæsarean section, and extra-uterine pregnancy, and Chapters XXXV. and XXXVI. deal with the radical cure of hernia and intestinal complications. These last cover a wide area, and are comparatively briefly treated, and rightly so, for they only indirectly concern the gynæcologist. The final chapters (XXXVII. and XXXVIII.) describe the more remote results of abdominal operations and the conduct of autopsies.

We have spoken of the contents of the book in some detail, to show what an extensive ground is included thereby. Such a work must long remain as a standard book of reference, and will always be a lasting memorial of the labours of the author both in deed and word. The one weak spot is in the index, which might be considerably enlarged, and so further enhance the value of a work of which we have little to say except in appreciation.

Ovariotomy and Abdominal Surgery. By HARRISON CRIPPS. Pp. 624. London: J. & A. Churchill. 1898.

The main part of this book runs to 422 pages, the rest being taken up with an appendix of selected cases which are out of

place and in no way enhance the value of the work. We hope that in any future edition this space will be taken up by a greater elaboration of the details described in the earlier part of the volume; for the fault of the book as a whole lies in the insufficiency of description devoted to the various subjects. The author tells us that his chief object is to record such methods as he has found valuable in his own experience; but the addition of a chapter of "Anatomy of the Abdomen" (which is beautifully illustrated by coloured plates), mainly from the pen of Mr. H. J. Waring, and others on the "Surgery of the Kidney' and the "Radical Cure of Hernia," by Mr. Bruce Clarke and Mr. C. B. Lockwood respectively, indicate that there was also a desire to make the book complete and of general use. In this, however, we do not think the author has fully succeeded, owing to the want of detail. The only chapters which have received sufficiently full treatment are those on "Ovariotomy" and "Inguinal Colotomy." Our objection is rather with what has been left unsaid than with what has been actually written, and the incompleteness of the work renders it of comparatively little value to those seeking information on abdominal surgery. This could be altered, without increasing the size of the book, in the way already suggested.

A Clinical Treatise on Diseases of the Breast. By A. MARMADUKE SHEILD, M.B. Pp. xvi., 510. London: Macmillan and Co., Limited. 1898.

It would be a mistake to think all pathology had been omitted from Mr. Sheild's book because he calls it a "clinical treatise," but the work is eminently one for the guidance of the surgeon in the many difficulties he has to encounter both in the diagnosis and the treatment of diseases of the breast. Mr. Sheild has written an admirable and a very readable book—the style is good, and the information clearly given. Coloured plates abound, and we have hardly ever seen morbid conditions so clearly represented. We must, however, make an exception of Plate XIV., which we think does not represent the scirrhus-growth as nearly white enough.

The results of operations for cancer of the breast are given with a clearness and fulness which make this part of the work of much value. This we might expect, for it is not long since Mr. Sheild brought the matter before the Royal Medical and Chirurgical Society, and elicited the opinions and experiences of both the senior and junior surgeons in London, some of whom adopted very different lines of practice. We cannot help saying that we consider there is one fault in the book, which, however, is not confined to Mr. Sheild's writings or sayings. It is the idea implied now and again in this work that a London surgeon has special opportunities for arriving at a right conclusion on some

disputed facts. This all depends on the amount of clinical or pathological material available by the individual surgeon. Many surgeons attached to large provincial hospitals have much greater experience of diseases than surgeons on the staff of some of the London hospitals.

All that is best in recent periodical literature on the subject on which Mr. Sheild writes is referred to by him. Duct cancer, a subject about which so much has been written of late, and of which various descriptions are still given, is clearly described, and its distinction (which is so great) from ordinary cancer is well given. Beatson's method of treating cancer by oöphorectomy receives some notice, and also the treatment of malignant disease of the breast by Coley's fluid. Reference is of course made to Mr. Gould's very interesting case, in which an undoubted recurrent cancer of the breast and glands entirely disappeared. Mr. Sheild is sceptical as to the spontaneous disappearance of fibro-adenomata of the breast. He thinks such swellings have probably been sclerosing mastitis or cysts with indurated breast-tissue around. He says fibro-adenomata roll about in the breast. This is a very common statement; but we should like to know how the movement takes place. There is no space for them to roll about in. The finger receives the sensation as if they were rolling about in the breast, but that is because the part of the breast in which, or on which, they lie can be so readily moved on the other portions of the organ. A full and instructive account is given of Paget's disease of the nipple, or "dermatitis maligna" as Mr. Sheild calls it, in which the relation of the disease to psorosperms is discussed.

We can strongly recommend the book, not only to the busy practitioner who needs to refer to some modern work for guidance in dealing with diseases of the breast, but also to the operating surgeon, for the problems which he has to face are clearly and ably discussed.

System of Diseases of the Eye. Edited by WILLIAM F. NORRIS, M.D., and CHARLES A. OLIVER, M.D. Vol. III.—*Local Diseases, Glaucoma, Wounds and Injuries, Operations.* Pp. xii., 962. Philadelphia: J. B. Lippincott Company. [1898.]

A considerable departure has been made from the original forecast of the contents of this volume. The articles on diseases of the cornea, diseases of the lens, and errors of refraction have been deferred to the fourth volume. On the other hand, Dr. G. C. Harlan, in addition to his chapter on "Diseases of the Eyelids," contributes forty-four pages on "Operations performed upon the Eyelids," a useful section, which was not specified in the original programme, and which adequately describes all the best-known expedients. For want of space a critical reference to the various articles is impossible, but some 160 pages at the end of

the volume on "operations usually performed in eye-surgery," deserve special mention. The author, Dr. Herman Knapp, is so well known as a master of this subject that his dogmatic statements are more than justified, though all may not agree with them. For example, to cleanse the eye before operation he uses bichloride of mercury, 1 to 5000, with which he mops the everted palpebral conjunctiva, while in cataract operation he advocates operating on the patient in his bed. His style is terse; but the meaning is precise, and the article covers an immense amount of ground. Recognising the risks of a needling operation, but at the same time its almost inevitable necessity, he performs his extractions specially with that end in view, and takes particular care to avoid any unnecessary mangling of the iris, or injury to the lens capsule. The disastrous suppuration which is occasionally seen to follow discission of secondary cataract he attributes not to direct inoculation from the needle, or immediate infection of the wound, but to the awakening of pyogenic germs which had been previously introduced, and were lying dormant.

The volume on the whole is remarkably free from errors. We notice, however, on page 261, in speaking of pupillometers, a correct description is given of the Keratometer, invented by Mr. Priestley Smith some fifteen years ago, which the writer says may be used as a pupillometer. But by accident it is called a Tonometer, and as a result a picture of the tonometer, invented by Priestley Smith in 1866, is dragged in "to render the working of the tonometer clear to readers." It is incredible that the authors of the article should be responsible for the whole of this blunder. The chapter on glaucoma by Priestley Smith, in which the tonometer is again depicted and correctly described, is admirable in every way, and the wood-cut illustrations are all that could be wished.

In reference to the illustrations of the volume generally, it must be said that they are on the whole disappointing. Some are very good. Some are pretentious, but convey no particular information; whilst others, particularly those illustrating ophthalmoscopic appearances, are quite unworthy of being included in so important a work. The article on diseases of the retina is marred by such plates as XII. and XXVII. The section on diseases of the choroid has no illustrations of the fundus oculi, and so does not suffer in this respect, but it is only fair to say that the illustration of the fundus facing page 768 leaves nothing to be desired.

A Treatise on Aphasia and other Speech Defects. By H. CHARLTON BASTIAN, M.D., F.R.S. Pp. viii., 366. London: H. K. Lewis. 1898.

Dr. Bastian is so high an authority on aphasia that this book, which gives a complete and authoritative exposition of his views on the subject, will be read with great interest. The

remembrance of the admirable Lumleian lectures of 1897, dealing with "some problems in connection with aphasia and other speech defects," will arouse favourable anticipations with regard to the present volume, which are not disappointed in it. Dr. Bastian is well-known for the lucid manner in which he presents to his readers some of the most intricate problems with which medical men have to deal. He has wisely in this book illustrated his observations with reports of typical cases, well chosen, and for the most part completed by a necropsy. The careful study of such reports gives great help in the actual working out of the problems involved in cases of aphasia, and brings out more clearly the basis of fact on which the theories of speech-defect are founded. The book is also free from the tendency found in some writers on aphasia to construct elaborate classifications, which have very little to support them in the way of proved pathological or psychological data. We are grateful to the author for the simple nomenclature which he adopts, and which is easily understood.

Besides expressing his own views as to the nature and origin of aphasic defects, Dr. Bastian gives throughout the book a very fair presentment of the views of other writers, especially on the points in which they differ from him. It would be impossible within the limits of this notice to enter into any discussion of the many vexed questions which beset the subject. Dr. Bastian attaches special importance and brings forward a number of cogent arguments for the activity of the word-centres in the right as well as in the left hemisphere, and for the compensatory action of the former in disease affecting the latter; this possibility, first advanced as a probable explanation of the preservation of slight or disordered speech after destruction of the left auditory word-centre, was originally due to him. But for this and the many other difficult and interesting points connected with the disorders of speech we must refer the reader to the book itself, in which he will find that they receive a full and adequate discussion.

The work can be confidently recommended as a trustworthy guide by the hand of a master. The excellent introductory chapters deserve special mention; and the final chapters on etiology, diagnosis, prognosis, and treatment of speech-defects are particularly good, and will be found of much value in practice. Where necessary the text is illustrated by clear diagrams, and a carefully thought-out scheme for the examination of patients is given.

Diet and Food, Considered in Relation to Strength and Power of Endurance, Training and Athletics. By ALEXANDER HAIG, M.D. Pp. vi., 86. London: J. & A. Churchill. 1898.—Dr. Haig's views on uric acid are now well-known, but the world has not yet sufficiently realised that "in diet lies the key to nine-tenths of the social and political problems that vex our

nation and time." The universal experience of mankind for many centuries counts for nothing: "Diet, as at present used, is often the product of a vast amount of ignorance; it is the cause of a hideous waste of time and money; it produces mental and moral obliquities, destroys health and shortens life, and generally quite fails to fulfil its proper purpose." How to remedy all this, to show how diet may be easily made to fulfil its proper purpose, is the author's object in this little book, the work of an enthusiast in the subject and a radical reformer of diet both in health and disease.

Wie ist die Fürsorge für Gemüthskranke von Aerzten und Laien zu fördern? Von Prof. Dr. C. FÜRSTNER. Pp. 64. Berlin: S. Karger. 1899.—This is a pamphlet dealing with some aspects of the care of the insane in Germany. The author advocates the formation of special departments in general hospitals for treatment of mental diseases (such as, for instance, exists at St. Thomas's Hospital), and then points out some legal difficulties which have arisen, in Germany, in the transference of patients from such clinics to asylums. He also discusses from what class nurses should be drawn, and recommends, as far as possible, the substitution of female for male nurses.

Minutes of the General Medical Council for the Year 1898. Vol. XXXV. London: Spottiswoode & Co. 1899.—No one, until he has looked through the various reports and recommendations of the numerous committees and branch councils, has any idea of the vast amount of work done by the General Medical Council. The public generally, and the medical profession in particular, ought to be most thankful that they are represented by such an able body of men, who at times may be a trifle too unprogressive and make some blunders, but who are altogether doing a very useful work.

Aids to Examinations. Part II. By T. REUELL ATKINSON, M.D. Pp. 170. London: Baillière, Tindall & Cox. [N.D.].—If this book is really an "aid to examinations," so much the worse for the examinations. It is a curious medley of medicine, surgery, midwifery, pathology, anatomy, and physiology. No attempt has been made to arrange it in any order, so that the reader jumps from a question in medicine to another in anatomy. We recommend students to acquire their knowledge in a manner different from this, and not trust to such miscalled "aids."

Epidemic Cerebro-Spinal Meningitis and its Relation to Other Forms of Meningitis: A Report of the State Board of Health of Massachusetts. By Dr. W. T. COUNCILMAN, Dr. F. B. MALLORY, and Dr. J. H. WRIGHT. Pp. x., 5—178. Boston: Wright & Potter Printing Co. 1898.—This is a valuable contribution to the study of this disease, and gives the most complete account of the pathology. It deals with 111 cases of the recent epidemic in

the New England States, and these were fully investigated. It is the more interesting as the true nature of the recurring epidemics of cerebro-spinal meningitis appears to have been first recognised in Massachusetts. Short accounts of the clinical history of each case are given, with, in many instances, charts of the pulse and temperature. The general result of this enquiry is to confirm the diplococcus of Weichselbaum as the cause of the disease; it was found in 31 out of 35 fatal cases in cultures taken from the exudations after death. Stress is laid on the importance of spinal puncture in diagnosis. This procedure gave a positive result in 38 out of 55 cases, and it is pointed out that from this source fresh light may be anticipated on the sporadic cases of the disease. The organism is not very viable outside the body; inoculation into animals was only once successful in producing meningitis, in the case of a goat. In the meningeal exudation large cells were found, often containing many leucocytes, and were derived from the cells of the connective tissue, and from those lining the lymph spaces. Amongst other changes in the brain, chiefly secondary to the meningeal inflammation, we notice the pronounced changes in the neuroglia, consisting of swelling and proliferation in the glia cells. All the changes in the brain-substance were very marked around the ventricles. The authors found that lesions of nerves were very common—of the cranial nerves, especially the second, fifth, and eighth;—and lesions of the spinal nerve-roots, varying in intensity, were found in every case in which they were examined. With regard to the important question of the distinction from pneumococcus meningitis, the authors say that without being warranted in making extensive generalisations, the absence or slight development of symptoms pointing to extensive infection of the meninges, of the cord and spinal roots, and extension of infection along the cranial nerves point to the pneumococcus infection. A series of good coloured plates of the most important bacteriological and pathological appearances is given, and the work affords the best account of the disease, derived from original observations, known to us, and has been admirably done in every respect.

The Schott Treatment for Chronic Heart Diseases. By RICHARD GREENE. Second Edition. Pp. 16. London: The Scientific Press, Limited. 1898.—This brief account of the treatment of heart disease at Nauheim is of value to those who do not wish to buy a more expensive book. The number of patients visiting Nauheim continues to increase, so apparently the interest in the treatment is not materially abating.

How to Avoid Tubercle. By A. T. TUCKER WISE, M.D. Pp. 15. London: Baillière, Tindall and Cox. 1898.—The size of this booklet shows what the power of condensation is able to effect. Dr. Wise emphasises the fact that many household pets, such as canaries and parrots, may be a source of tubercle

dissemination, and considers that in regard to health a household is safer without any pets—except, perhaps, the cat and dog.

A Synopsis of Surgery. By R. F. TOBIN. Pp. xx., 3—277. London: J. & A. Churchill. 1898.—This book, the author states, is a collection of leaflets of synopses of lectures delivered by him at St. Vincent's Hospital, Dublin. It is not illustrated, save for a few temperature charts; and the subject matter, which is interleaved with blank paper, is little more than a tabulation of facts "to lessen for the students the trouble of taking notes." For this purpose it will, no doubt, be useful, as the facts may be generally accepted and they are concisely stated. Externally the book resembles an *édition de luxe* of a devotional work.

An Investigation on the Influence upon the Vital Resistance of Animals to the Micro-organisms of Disease brought about by Prolonged Sojourn in an Impure Atmosphere. By D. H. BERGEY, M.D. Pp. 10. Washington: The Smithsonian Institution. 1898. —The experiments here recorded were undertaken with a view to determining whether impure atmosphere produces detrimental effects upon the animal organism as shown in greater susceptibility to certain diseases. Owing to technical difficulties, results were obtained in only one series of experiments. In these it was shown that guinea-pigs living in an atmosphere containing a larger amount of carbonic acid than normal succumbed more quickly to tuberculosis when inoculated than did control animals.

A Text-Book upon the Pathogenic Bacteria. By JOSEPH MCFARLAND, M.D. Second Edition. Pp. 497. London: Henry Kimpton. 1898.—The second edition of this work does not present many new features, the most important being additional chapters on whooping cough, mumps, yellow fever, hog-cholera, and swine-plague. The general scope of the volume remains very much as in the first edition, a favourable notice of which has already appeared in this *Journal*.

A Synopsis of the British Pharmacopœia, 1898. Compiled by H. WIPPELL GADD. [Third Edition.] Pp. 183. London: Baillière, Tindall & Cox. 1898.—In this edition some fresh information is added, and the doses as expressed in metric equivalents are now given only approximately and not precisely exact; this arrangement, however, is much more practically useful. We can now repeat even more warmly the praise which we bestowed upon the first edition.

Chloroform: Its Absolutely Safe Administration. By ROBERT BELL, M.D. Pp. 40. Glasgow: Robert Love Holmes. 1898. —Whilst we entirely agree with Dr. Bell as to the desirability of using some form of graduated inhaler for the administration of chloroform, we doubt very much whether his pamphlet will in any way conduce to a general acceptance of his views. In a

work avowedly written for and in the interests of the public, it is to be regretted that there should occur such a statement as the following: "Each death which occurs [in the administration of chloroform], to put it mildly, should in justice be described as one of culpable homicide." The statement, too, that in medical journalism there is an organised opposition to the facts of the chloroform controversy being known is without foundation. From a scientific standpoint this monograph is worthless, and it is calculated to do much harm by alarming and misleading the public.

Diseases of the Skin. By MALCOLM MORRIS. New [Second] Edition. Pp. xv., 589. London: Cassell and Company, Limited. 1898.—That there is a demand for this useful book is shown by this considerably enlarged edition. It seems almost superfluous to say that, upon the whole, the work is an excellent one for the busy practitioner as well as for the student. It is concise and clearly written. To some minor points only should we take exception. We have seen cases of "verruca necrogenica" amongst men who have had nothing to do "with handling dead tissue," and we are of opinion that one attack of erythema nodosum is, comparatively, rarely followed by a second one. Herpes zoster, in our opinion, is not such a right-sided affair as the author states ("the right side being far more often affected than the left," p. 158). We have investigated returns of our cases extending over nearly ten years, and out of 206 cases of zona the right side was affected in 100, the left in 93, and in 13 cases the incidence was unrecorded. We have seen a statement that zona occurs nineteen times on the right side to one on the left side of the body. On the other hand, amongst the older writers, Reil observes that he has always found it on the left half of the body. In looking over our statistics we do find sometimes a remarkable run, first upon one side and then upon the other; and we can well conceive that one observer, in the chapter of coincidences, might meet with a long one-sided succession. We have gone into this question before, and we believe the incidence would be, in a large number of cases, as much in favour of one side as the other. The index, printed in unnecessarily small type, is good, but has faults. "Rodent ulcer" should be p. 558, not 556; and on p. 138 we do not find a word about lichen planus. We congratulate the publishers on the improved external appearance of this edition.

Essentials of the Diseases of the Ear. By E. B. GLEASON, M.D. Second Edition. Pp. 206. London: Henry Kimpton. 1898.—We are not surprised that this little book has so rapidly reached a second edition. It contains in a small compass a large amount of useful information; and it is written in such a bright and easy manner that it forms a most readable work, notwithstanding the fact that it is arranged in the usually objec-

tionable form of question and answer. The present edition contains a good account of the principal modern surgical procedures in intra-cranial complications of ear diseases; these are well illustrated and are plainly described. We know of no other small work on ear diseases to compare with this either in freshness of style or completeness of information.

Transactions of the Clinical Society of London. Vol. XXXI. London: Longmans, Green, and Co. 1898.—This volume contains a most interesting and varied collection of clinical reports on medical and surgical cases. Dr. Calot himself contributes a paper on his treatment of Pott's disease, and there are others—all more or less favourable to Calot's method—on the same subject. The report of the Committee on the antitoxin of diphtheria is also added, and the results of their investigation tend to show that by the use of antitoxin the general mortality is reduced by one-third.

Transactions of the Royal Academy of Medicine in Ireland. Vol. XVI. Dublin: Fannin and Co., Ltd. 1898.—A noteworthy paper in this volume is that on "Pneumonia: a Multiple Infection," by Dr. John W. Moore, who submits "that there is clinical evidence to show that a true pneumonitis may occur in . . . erysipelas, influenza, tuberculosis and enteric fever. Further, it is reasonable to suppose that in each case the pneumonitis is directly due to a localisation of the specific poison of the disease in the lung, whether that poison be a micro-organism itself or a toxin derived therefrom." Dr. W. R. Dawson, writing on membranous colitis, remarks: "The lesion is of the nature rather of a slight annoyance rather than a serious malady, and hence does not appear to demand any more energetic interference" than enemata, especially glycerine injections of about a couple of drachms, which appear to have been found most satisfactory. The "Clinical Report of the Rotunda Hospital" is, as usual, full of interest.

Transactions of the Grant College Medical Society. Bombay: The "Tattva-Vivechaka" Press. 1898.—These *Transactions* are for the most part a summary of a series of papers on the therapeutics of Indian drugs, of many of which we have never heard. The various meetings at which these papers were read must have been somewhat tame, but Dr. Dhargalker appears to be a host in himself, and scarcely any other topics were needed. Twenty or so new drugs at a meeting must give our Indian *confrères* abundant food for therapeutic investigation. The booklet is very unattractive in appearance.

Transactions of the Iowa State Medical Society. Vol. XVI. Burlington: The Keehn-Hafner Mfg. Co. 1898.—The Society whose transactions are here recorded has reached the 47th year of its existence. Many of the papers are on topics of general interest, and are worthy of a very wide circulation. The book would be all the better if more attention were given to the proof-

reading. We noticed "Kraska," "chololithiasis," "serum-theraphy."

Transactions of the Medical Society of the State of New York. Published by the Society. 1898.—The present issue contains the usual amount of valuable material which is to be found in these volumes, and is in every way equal to its predecessors. We would notice particularly the excellence of the articles on the use of the X-rays in medicine and surgery.

Transactions of the Ohio State Medical Society. Cleveland: J. B. Savage Press. 1898.—The Society contains 903 members and is evidently doing good work. The discussions on the various papers read at its fifty-third annual meeting are fully reported and are full of interest.

Transactions of the South Carolina Medical Association. Charleston: Walker, Evans & Cogswell Co. 1897.—This is the report of this Association's forty-seventh annual session. It shows that the South Carolinians are aspiring to be at all times up-to-date, and are working with the motto which their president wished them to keep continually before their eyes, "High endeavour and concerted action."

Transactions of the American Surgical Association. Vol. XVI. Philadelphia: William J. Dornan. 1898.—The most notable articles in this volume are on "The Etiology and Classification of Cystitis," by N. Senn; "The Question of Operative Interference in recent Simple Fractures of the Patella," by C. A. Powers; "The Use of Animal Toxins in the Treatment of Inoperable Malignant Tumors," by G. R. Fowler; and "A Clinical and Histological Study of Certain Adenocarcinomata of the Breast," by W. S. Halsted. Dr. Senn gives a most exhaustive account of his investigations into the subject of the various forms of cystitis, chiefly bacteriological, but partly also clinical, by which he proves that the essential or exciting cause of cystitis is invariably the presence of microbes in the tissues of the bladder. He describes the various forms of microbes met with, and discusses their mode of entrance into the bladder. The article well deserves a careful study. Dr. Powers has made a collective investigation among the Fellows of the American Surgical Association, the Members of the New York Surgical Society, and of the Philadelphia Academy of Surgery as to the advisability of operating on recent simple fractures of the patella, the form of operation preferred, and the number of cases operated on, with results. He gives a summary of the replies, and we are astonished at the conservative feeling manifested by the majority of these surgeons on the subject. Four would actually use Malgaigne's hooks in suitable cases where the fragments cannot easily be approximated. Seventeen are opposed to operation in any case. Nine would operate in all cases in which no distinct contraindication exists and in which the surroundings are satisfactory. Forty-one would operate on

selected cases. Very high praise is given to the so-called "Dutch" method of treatment by massage. This is not half so well known in this country as it should be, and we refer our readers to this article for an admirable description of it. The article by Dr. Halsted contains his latest views and statistics on the methods and results of the supraclavicular operation and other operations for the removal of cancer of the breast, and we are appalled at the radical nature of the operation now advised by Dr. Halsted. The operation as now performed by him occupies from two to four hours and requires highly trained and skilful assistants. So much skin is removed that grafts have to be cut from the patient's thigh as large as or larger than one's hand to cover the raw surface. The neck is operated on in every case. Both pectoral muscles are removed. The axillary, subclavian and internal jugular veins are stripped clean. The supra-clavicular fossa is cleaned out. All fat is removed from the subscapular region and also from the supra- and infra-clavicular regions, while the nerves and vessels of the axillary cavity are stripped as clean as possible. After this extensive operation Dr. Halsted has met with an astonishing degree of success. One hundred and thirty-three cases have been operated upon; there have been only thirteen local and twenty-two regionary recurrences, while of seventy-six cases operated on more than three years ago, thirty-one are living without recurrence. This is far better than any results that have hitherto been shown, and it looks as if the day of the old operation had gone for ever.

The Transactions of the Edinburgh Obstetrical Society. Vol. XXII. Edinburgh: Oliver and Boyd. 1897.—Apart from the usual subjects of clinical interest which the *Transactions* always contain, there are in the present volume many papers on the speculative and scientific side of the subject, such as the question of the existence of a positive pressure in the growing pregnant uterus and the causation of twins. These are well worth reading, and will be found to contain many valuable suggestions.

Transactions of the Ophthalmological Society of the United Kingdom. Vol. XVIII. London: J. & A. Churchill. 1898.—In his Bowman Lecture, Mr. Priestley Smith, amongst many original observations, suggests that ordinary convergent strabismus, bearing as it does but little relation to the degree of the hypermetropia, is due to the "overaction of a motor centre which has escaped from conscious control." He lays stress on the necessity for "educative" treatment in addition to spectacles and operative measures. The elaborate report of the sub-committee on excision of the eyeball and the various operations which have been substituted for it occupies more than seventy pages. On the whole, the verdict is in favour of simple excision, with the addition in suitable cases of the insertion of a glass

globe into Tenon's capsule. Mr. Gunn's very able paper on the ophthalmoscopic evidence of arterial disease is the outcome of an immense amount of careful observation. The diagnostic value of the conditions he depicts and describes, especially perhaps in cases where there is *no* albuminuria, is only just beginning to be recognised. In his paper on epithelial xerosis of the conjunctiva, Mr. Sydney Stephenson concludes that the disease is not usually due to the so-called xerosis bacilli, which are invariably present and are microscopically indistinguishable from diphtheria bacilli, but is caused by the irritation of spring and summer sunlight acting on the conjunctiva of anæmic and ill-nourished children. Upwards of a dozen cases are related of the successful detection of foreign bodies in the globe or orbit by the aid of the X-rays, and some good reproductions are given of Mr. Mackenzie Davidson's skiagrams.

The Transactions of the Society of Anæsthetists. Vol. I. London: The Medical Publishing Company, Limited. 1898.—The transactions of this infant Society deal chiefly with debatable points. Attention may be directed to Mr. Walter Tyrrell's suggestion to add ether vapour from a second bottle to the chloroform vapour from a Junker's apparatus; and to the address of Dr. Waller on the dosage of anæsthetics, embodying his conclusions from experiments on nerve. He lays stress on the great fact that the lethal dose of chloroform is only twice the anæsthetic dose. The book is sent out in an unattractive dress, and has neither table of contents nor index.

Annual and Analytical Cyclopædia of Practical Medicine. Vol. III.—*Dislocations to Infantile Myxœdema.* Philadelphia: The F. A. Davis Company. 1899.—Dr. Sajous, the editor of this stupendous work, states that the kind reception afforded the first two volumes has been the source of much gratification. The plan of the work has met the wants of the general practitioner, while preserving for authors and teachers the leading advantages of the older annual. On reading through several of the articles, *e.g.*, epilepsy, exophthalmic goitre, infantile myxœdema, hypnotism, and hysteria, we have found them to be very accurate and complete monographs on the respective subjects.

E. Merck's Annual Report [of New Medicinal Preparations] on the year 1898. Pp. 185. Darmstadt: Eduard Roether. 1899. —The composition and action of many modern drugs are here described, together with an original communication on the action of some morphia derivatives. The well-known name of Merck requires no commendation; but many of these preparations, though interesting from the chemical standpoint, are too much in advance of the Pharmacopœia to be of great utility to other than the experimental therapeutist. Our patients commonly will not be satisfied to spend time and money on drugs whose reputation has not yet borne the test of time.

Therapeutic Notes. London: Parke, Davis & Co.—Dated July, this is the first number of a serial which is a simple advertisement, bright, crisp, and up-to-date, of some of the preparations of this enterprising firm.

The British Physician. London: The Sanitary Publishing Co., Ltd.—This new monthly journal aims at a more or less distinctive character, and "while admitting contributions on any and every branch of medical science and practice, will be more closely concerned with therapeutics and pharmacology." It will avoid matters of purely surgical interest. We trust that the editor will be able to carry out his views and will have the support of a large staff of scientific contributors, both metropolitan and provincial.

The Caledonian Medical Journal. Glasgow: Alex. Macdougall. —This new exchange contains the proceedings of the Caledonian Medical Society — which is peripatetic, holding its annual meetings in various towns. The editors are Dr. Macnaughton of Stonehaven, and Dr. Andrew Little of Burnley, who inform us that the reputation of the *Journal* is steadily increasing, and that no pains will be spared to make it bright, interesting, and readable. If the members of this Society are not immortalised by their professional doings, they will be borne in mind by an amused posterity, for a picture of them at dinner is given as a frontispiece to this number.

The Edinburgh Medical Journal. New Series. Vol. V. Edinburgh: Young J. Pentland. 1899.—We have in this publication a nicely printed volume of 648 pages, containing a large number of original articles, many reviews of recent books, and a monthly account of the recent advances in the various departments of medical science. Those who do not see the monthly numbers of the *Edinburgh Medical Journal* would do well to peruse the six-monthly volume, which contains the views of the best authorities on many modern topics.

A Year's Work in Medical Defence, 1898. London: 4 Trafalgar Square.—From the annual report of the Medical Defence Union we learn that the condition of the fund is satisfactory, and that the Union continues to gain members. Of its utility, if proof were needed, the present report is evidence. We cannot help regretting that the Council have decided not to proceed further in the prosecution of quacks, although we believe such a duty is one that naturally devolves upon the General Medical Council, but that body seems to prefer to obtain convictions for qualified men. We may call attention to the change of address, so that medical men wishing to join should now write to the address given above.

Archives of the Roentgen Ray. Vol. II. London: The Rebman Publishing Company, Limited. 1898.—Vol. ii. of this interesting chronicle of skiagraphical progress, though it

has no very remarkable development of its subject either in theory or practice to record, contains nevertheless particulars of a good deal of important work which has been done with the object of enlarging the possibilities and ensuring the success of X-ray diagnosis. Two questions of special practical moment are conspicuously to the fore. The first is the exact localisation of foreign bodies when surrounded by a great thickness of tissue, and this receives a good deal of attention, several methods of procedure, both with the photographic plate and with the fluorescent screen, being described. The other question is the structure and efficiency of that most essential of all the items of skiagraphical equipment—the X-ray tube. This is also dealt with at considerable length, and considering how fickle and untrustworthy, for the most part, the average tube proves when put to the test of serious use, such investigations into the conditions of maximum efficiency as are here recorded are of the highest value. In addition to the letterpress, the volume contains numerous well-executed reproductions of skiagrams. Many of these are interesting, though none present features of special novelty, except perhaps Dr. W. J. Morton's skiagram of the whole of an adult, taken by a single exposure of thirty minutes.

Burdett's Official Nursing Directory, 1899. London: The Scientific Press, Limited.—The second year of the *Nursing Directory* differs little from the previous one, which we noticed a year ago. Testing it by reference to the various institutions we know locally and elsewhere, we find it correct, and the information as complete as required. Perhaps we shall some day have the legal status of a nurse defined, and then the *Directory* will really be of "official" value. We still think it desirable that there should be local lists.

Year-Book of the Scientific and Learned Societies of Great Britain and Ireland. Sixteenth Annual Issue. London: Charles Griffin and Company, Limited. 1899.—It seems strange that the compilers of this book will not increase its value by providing a more comprehensive index, which should include references to the papers read before the societies. Some of the slight errors in its pages might be removed if a proof was sent to the numerous secretaries of the societies recorded.

Knowledge. June, 1899. London: T. Thompson.—We are glad to see this old-established journal showing such sustained vigour. The number of interesting original scientific articles is remarkable, and the illustrations are good. As a result of a careful study of the Hereford earthquake of 1896, Dr. Charles Davison puts forward an ingenious theory of the origin of the double focus in earthquakes. A map shows the large area affected by this disturbance, which acted over probably 100,000 square miles. There are charming papers on certain crustacea which grow to fit the habitations they adopt, and on the

organisms to which flint is originally due; while the column of ornithological notes will attract many lovers of rural sights and sounds. A paper by Professor A. Thomson gives us in graphic form the proportions of the limbs and trunk of the human subject in different races. The long arms and long legs of the negro, the shortness of the upper in contrast with the lower limb of the white man, and the long legs and short body of the Australian are strikingly displayed. The ultimate reduction of the great existing mass of anthropological data to some useful form seems to depend on the adoption of some such method as this.

Physicians' Book for Private Formulæ: with Posological Table. Bristol: John Wright & Co. [1898.]—Those who have short memories may find this little book useful for recording formulæ, the details of which they have difficulty in carrying in their heads. The blank pages for this purpose, together with the doses of the last *British Pharmacopœia* preparations and much other useful information, make up a tiny but elegant volume which can really be a waistcoat-pocket companion whose society may often be of value to the doctor.

Programme of the Inauguration. Wellcome Club and Institute, June, 1899.—The enterprise of the firm of Messrs. Burroughs, Wellcome, & Co. is not limited to providing facilities for the prescribing doctor, but has an ever watchful care for the well-being of those whom it employs. The last practical shape which this has taken is a Club and Institute at Dartford, which, to judge by the illustrations given in the booklet, must be a truly delightful place.

Notes on Preparations for the Sick.

The annual museum of the British Medical Association usually gives an excellent opportunity of learning what new things there are in food and physic; the recent display at Portsmouth was no exception to the rule. We propose to notice a few of the things which attracted our attention.

The **Somatose** group (Bayer & Co.), including Ferro-Somatose and Lacto-Somatose, which we have noticed on previous occasions (September, 1895, and March, 1899), appear to be establishing themselves as very useful manufactured foods in the convenient form of powders. Fairchild's **Peptogenic Milk Powder**, about which we said something last September, is also well known as a means for the production of normal mother's milk for infants. One of the most interesting series of food products has as its basis a powder prepared from milk, containing the milk proteids. It is called **Protene** (The Protene

COMPANY), and may be regarded as a dried milk from which the fat and sugar have been eliminated. It is obviously not a complete milk food, but is practically a pure proteid, which will keep for any length of time, can be added to or combined with a great variety of other foods, and cannot fail to be most valuable to the diabetic and the corpulent. A great variety of biscuits made with the protene flour as a basis provides suitable food for many different purposes and various tastes.

The use of a powder like protene, with the addition of cream and sugar, goes far towards the abolition of the morning and evening importation of so many tons of water inside the milk cans, which are such an annoyance diurnally at most of our railway stations. Why should not the milk be at once concentrated, and be kept in the house ready for use at any time by the mere addition of water? The ordinary condensed milks have not been as great a success as they deserve; possibly a milk powder would be more likely to attract the public fancy. Is not this the best solution of the difficulty as regards the prevention of tuberculosis by the sterilisation of milk? The abolition of the uncooked milk, and the sole use of the manufactured product, would reform the milk trade and be greatly to the advantage of the consumer. A milk powder, which may form the basis of a great variety of milk drinks, gives great scope for an indefinite production of products suitable to the needs of the invalid of the future.

The products of the AYLESBURY DAIRY COMPANY, HENRI NESTLÉ, and the ANGLO-SWISS MILK COMPANY are now well known to be perfectly trustworthy.

Several varieties of **Foods for Special Invalids** were exhibited by Messrs. CALLARD & Co., who provide not only for the diabetic but for the obese, the gouty and the rheumatic. They have also a special food to counteract constipation, a palatable, moist brown bread, a marmalade made with glycerine, and an infants' food described as non-farinaceous.

Mellin's Food products were much in evidence, including our old familiar friends the Mellin's Food Biscuits and the Cod Liver Oil Emulsion.

The **Beef Peptonoid** powder of Messrs. CARNRICK & Co., and the **Liquid Peptonoids** prepared from it, are beginning (though somewhat slowly) to be appreciated. The powder is efficiently sterilised during manufacture, and in the liquid preparation this aseptic condition is maintained by the addition of sufficient alcohol to preserve it. The combination with Coca is a palatable predigested fluid having much nutritive value.

The **Bovril** preparations are maintaining their reputation. One of the best of these is the raw **Meat Juice** expressed in the cold, and which is of the highest nutritive value.

Of the numerous preparations exhibited by Messrs. ALLEN AND HANBURYS the most interesting and novel were two combi-

nations of Creasote: one, the phosphate, called **Phosote**, and the other, the tannophosphate, called **Taphosote**. They are best administered in capsules, each containing half a gramme. Six grammes have been given daily, and with a good result.

Hommel's Hæmatogen (NICOLAY & Co.) is a solution of Hæmoglobin, and should be an ideal blood-maker in cases where anæmia is a prominent feature, and more especially in cases where the inorganic preparations of iron are not proving satisfactory. In rickets, scrofula, and wasting diseases of childhood this fluid has given good results.

The **Hunyadi János Mineral Water** (ANDREAS SAXLEHNER) is too well known to require description. Its especial value at the present time is due to its presumed utility as an intestinal antiseptic in catarrhal gastro-enteritis of influenza type. It is recommended that it should be given freely, a pint on an empty stomach at the onset, and a glassful (!) on several consecutive mornings. The patient, purged of the influenza poison, is expected to escape all subsequent tendency to inflammatory complications, together with the adynamia and muscular debility.

The Library of the Bristol Medico-Chirurgical Society.

The following donations have been received since the publication of the list in June:

August 31st, 1899.

L. M. Griffiths (1)	56 volumes.
F. E. Hare, M.D.	1 volume.
Official Board of Advertising for the Isle of Man (2)	1 ,,
Medical Faculty, McGill University (3)	1 ,,
Norske Medicinske Selskabs Bibliotek (4)	35 volumes.
Editor of *The Railway Surgeon* (5)	1 volume.
Royal Medical and Chirurgical Society (6)	5 volumes.
R. Shingleton Smith, M.D. (7)	1 volume.
Editor of *Virginia Medical Semi-Monthly* (8)	1 ,,
Cyril H. Walker, M.B. (9)	1 ,,

Unbound periodicals and a framed picture have been received from Mr. L. M. Griffiths. Unframed pictures have been presented by Dr. J. O. Symes and Mr. Cyril H. Walker.

THIRTY-THIRD LIST OF BOOKS.

The titles of books mentioned in previous lists are not repeated.

The figures in brackets refer to the figures after the names of the donors, and show by whom the volumes were presented. The books to which no such figures are attached have either been bought from the Library Fund or received through the *Journal*.

Allbutt, T. C. [Ed.] *A System of Medicine.* Vol. VII. 1899
Anderson, J. W. *The Power of Nature in Disease* 1899
Anstie, F. E. ... *Notes on Epidemics* ... ... (1) [1866]
Armitage, T. R.... *Hydropathy as applied to Acute Disease*... ... ... (1) 1852
Baden, G. L. ... *Lægevidenskabens Historie* ... ... (4) 1823
Bauke, A. C. ... *Medical Officer* ... ... (1) 1860
Beil, B. ... ... *A System of Surgery* (1) Vols. I., New Ed., 1790, II., 3rd Ed., 1787, III., 4th Ed., 1789, IV., 3rd Ed. 1789
Blundell, J. ... *Vorlesungen über Geburtshilfe* (Deutsch bearbeitet von L. Calmann). 2. Hauptabth. ... ... (4) 1838
Boeck, W. ... ... *Recherches sur la Syphilis* ... ... (4) 1862
Bonorden, H. F.... *Die Syphilis* ... . (4) 1834
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Brindel, [—] ... *Des Lésions de la Table interne du Crane dans les Suppurations de l'Oreille moyenne* 1899
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Local Medical Notes.

BARNSTAPLE.

PUBLIC HEALTH.—Dr. Mark Jackson has been re-appointed Medical Officer of Health. Dr. R. Gooding has been appointed Medical Officer of Health for the Barnstaple Port Sanitary District, *vice* Mr. E. Rouse, deceased.

VACCINATION RETURNS.—At a meeting of the Board of Guardians held on July 21st, the Chairman remarked that vaccination was on the increase in their union; in one district £9 were paid for vaccination fees during the past quarter, whereas in 1898 only £15 were paid for the whole year.

BARRY.

NEW NURSING HOME.—With the rapid growth of Barry, the work of the nursing staff has steadily increased, and the New Victoria Jubilee Nurses' Home, which has just been completed, was very badly needed. It is a handsome and commodious structure, and has been erected entirely by means of voluntary subscriptions.

BATH.

PUBLIC HEALTH.—Dr. W. H. Symons has been appointed Medical Officer of Health for the City and County of Bath. At a meeting of the Town Council it was decided to increase the salary of the medical officer from £200 to £435 per annum.

PREVENTION OF CONSUMPTION.—At a meeting of the Sanitary Committee on June 26th the Medical Officer of Health (Dr. Symons) presented a report, in which he stated that there were last year 59 deaths from phthisis, and from other tuberculous diseases 28. In 1868 the deaths from phthisis in Bath numbered 132, and from other tuberculous diseases 70. This saving from death and from illness was probably due to sanitary and social improvement. Their death-rate from phthisis is now less than that for England and Wales; but they ought not to be satisfied as long as any persons died of phthisis. It

had been decided to form a branch of the National Association for the Prevention of Consumption for the Counties of Gloucestershire, Somerset, and Wilts. Other large towns were falling in with the movement, and Dr. Symons hoped Bath would not be behindhand. So far, he thought, they were doing more than was being done in many places. They disinfected after deaths from phthisis wherever they could get permission to do so, and they always visited the houses and left circulars as to the means to be adopted to avoid the disease. They had not yet got regulations under the Dairies, Cowsheds, and Milk-shops Order, but these were now under consideration. As to the practical results likely to follow the new movement, it appeared to him that they might teach persons suffering from phthisis how to carry out successful treatment at home by giving them a few weeks' treatment in a public institution where every detail was under medical supervision. Recent results showed that phthisis could be cured as well in England as elsewhere.

Royal United Hospital.—Mr. Frederick C. Forster has been appointed House Surgeon.

Eastern Dispensary.—Mr. D. Leslie Beath has been appointed Honorary Medical Officer.

Obituary.—The death is reported of Mr. John Terry. The deceased qualified as M.R.C.S. in 1844, and L.S.A. in 1845. Mr. Terry was a very old member of the Bath and Bristol Branch of the British Medical Association, and for many years served on the Council. He was a constant attendant at the meetings, and took an active part in discussions relating to mental diseases, in which, as proprietor of Bailbrook Asylum, he was most interested.

BRENTRY.

Home for Inebriates.—At the meeting of the Bristol Town Council held on June 14th, it was decided to make a conditional grant of £2,000 to the Royal Victoria Home for Inebriates at Brentry. The Cardiff Watch Committee, at their meeting on June 14th, decided to accept the offer of the authorities of the Inebriates' Home at Brentry, and to send patients there at a cost of £10 a year each, with 3s. 6d. per day for maintenance, such provision to be for not less than five inmates and for five years.

BRISTOL.

Ham Green Fever Hospital.—On the invitation of the Health Committee, a large number of medical men visited the new Corporation Fever Hospital at Ham Green, on July 14th. As a pamphlet containing full information on the structure of the pavilions and other buildings was presented to each present, there is no need to go into details; it will suffice to say that the wards are a model of what a hospital should be, the bed-space being more than ample, the sanitary arrangements and conveniences perfect, and every possible care taken to render the place suitable for the reception of sick people. Of the surroundings nothing could have appeared on that day more charming, the beautiful lawns, magnificent cedars and other trees, and the charming views made the visitors almost wish they were convalescents, and compelled to stop there for some weeks at the city's expense. The latest report is that some patients are already there, but, as the Medical Officer of Health said, the less the place is used the better he will be pleased, as it will indicate an absence of infectious diseases in the city. We cannot conclude without congratulating Mr. Yabbicom, Dr. Davies, and

the Hospital Sub-committee on the satisfactory completion of their labours, for they have supplied Bristol with a Fever Hospital second to none in the kingdom.

INFIRMARY NURSES' HOME.—The Carnival at the Zoological Gardens held to raise enough money to furnish the Nurses' Home at the Royal Infirmary was one of the most, if not the most, successful entertainment of that sort ever held in Bristol, and what is more gratifying, everybody was pleased, and more than sufficient money was received, though we have no doubt some worthy object will be found at that Institution for the surplus. Firstly, the weather was all that it should be, the gardens were at their best, and the willing band of ladies who took stalls or helped in the refreshment places, the medical students and many gentlemen who helped at the shooting galleries and Aunt Sally booths threw all their energies into "the cause," and extracted the not unwilling pence from the spectators. The bicycle gymkhana was very entertaining and some wonderful riding was shown by a company of ladies and gentlemen from Weston. Lastly, but by no means leastly, the maypole dance by small children was very pretty, and elicited hearty applause at each performance.

CARDIFF.

PUBLIC HEALTH.—A deputation from the Cardiff Medical Society has informed the Health Committee of the Cardiff Corporation that the members of the Society were prepared to notify to the Medical Officers of Health cases of tuberculosis coming under their notice, with a view to infected rooms and articles being disinfected by the Authority. No fee will be paid by the Corporation for the information.

The Public Health Laboratory, which was established last year by the Glamorgan County Council, will in future be under the joint charge of the Medical Officers of Health of Cardiff and of the county, under the name of the "Cardiff and County Public Health Laboratory." A bacteriological laboratory has been erected and fitted up by the County Council at a cost of about £500, and the current expenses of the institution will be shared during the next two years by the two Authorities. A bacteriologist is to be appointed at a salary of £300 per annum, and he is to have a qualified assistant. It is expected that arrangements will be made with the authorities of University College whereby the bacteriologist appointed may become a Professor of the College and give lectures on hygienic subjects.

INFIRMARY.—Dr. W. M. Stevens has been appointed Pathologist.

CHEPSTOW.

PUBLIC HEALTH.—Mr. G. Lawrence has been appointed Medical Officer of Health, *vice* Mr. E. P. King resigned.

CHELTENHAM.

HOSPITAL FOR SICK CHILDREN.—Mr. C. E. Lansdown has been appointed Surgeon.

CHIPPING SODBURY.

PUBLIC HEALTH.—Mr. A. D. Parr-Dudley has been appointed Medical Officer for the Fifth Sanitary District.

VACCINATION LITERATURE.—At a meeting of the Chipping Sodbury Board of Guardians a letter was read from Dr. F. T. Bond, Honorary Secretary of the Jenner Society, enclosing specimen tracts and leaflets on the subject of vaccination. One of the members thought they

should also have some of the large posters issued by the Society placed in two villages where information was much needed upon the matter. It was decided to purchase some large posters and copies of several of the tracts and leaflets.

DEVONPORT.

ROYAL ALBERT HOSPITAL.—At a meeting of the Subscribers of this Institution it was decided to erect a new Nurses' Home at a cost of £2,200, and to provide isolation wards, consulting rooms for the medical staff, etc., at an estimated expenditure of about £1,500.

INFIRMARY.—The Infirmary Committee of the Devonport Board of Guardians, in an exhaustive report on the nursing staff and the management and general condition of the infirmary, suggest that the Local Government Board should be urged to issue an order directing that matrons of workhouses should have no jurisdiction in infirmaries, but that the superintendent nurse should exercise paramount authority.

MEMORIAL TO THE LATE MR. L. P. METHAM.—At the annual meeting of the Royal Female Orphan Asylum it was decided to perpetuate the memory of the late Mr. L. P. Metham, M.R.C.S.Eng., L.S.A., who had been Honorary Secretary to the institution from its foundation, by raising a fund, to be called the "Metham Endowment Fund," for the maintenance of five beds to be filled by children nominated from time to time by his two daughters.

HONORARY FREEMANSHIP TO A MEDICAL MAN.—On July 25th the honorary freemanship of the borough of Devonport was presented to Alderman Joseph May, F.R.C.S.Eng., L.S.A., J.P. The certificate presented to Mr. May contained sketches of the municipal and other public buildings, made allusion to the "eminent services rendered to the borough" by him, and recorded his municipal appointments as follows: Commissioner, 1840-94; councillor, 1861-63; alderman, 1868-99; mayor, 1870-71, 1871-72, 1872-73, 1875-76. The casket was of silver-gilt, richly embellished and suitably inscribed.

EXETER.

DEVON AND EXETER HOSPITAL.—T.R.H. the Duke and Duchess of York visited the Devon and Exeter Hospital on July 4th. Afterwards a garden party was held in the grounds, and 120 little girls presented the Duchess with purses of £5 each, on behalf of the hospital.

GLOUCESTER.

PUBLIC HEALTH.—In his annual report, Dr. Bond, the Medical Officer of Health to the Gloucestershire Combined Sanitary District, states that the birth-rate was 26.4 per 1,000 of the estimated population. The general birth-rate has varied during the last ten years beween 29.6 and 25.9, but with a distinct tendency to decline, as might be expected in a district which is so largely agricultural in its character. The total number of deaths registered during the year was 1,264, being a diminution of 137, or 9.7, on the mortality of the previous year, and giving an average death-rate of 12.9 for the whole district, the best for the last quarter of a century.

HELSTON.

VACCINATION.—At the meeting of the Board of Guardians held on July 22nd, it was reported that the vaccination expenses for the last

quarter amounted to £107, being £72 in excess of the preceding quarter. The Clerk stated that at present the cost of vaccination would average about £180 yearly, while under the old system it never exceeded £50 per annum. The Guardians decided to petition the Local Government Board to reduce the minimum fees to be paid to Public Vaccinators.

ILFRACOMBE.

PUBLIC HEALTH.—Dr. E. Slade-King has submitted to the Devon County Council his annual abstract of the reports made by the Medical Officers of Health at the close of the year 1898, relative to the several rural and urban districts of North Devon, together with his comments. He says: "The standard reached by the majority of the reports is excellent, and is the outcome of earnest, practical work, conducted on the lines of skilful sanitary training. The vital statistics for North Devon are: Birth-rate, 24; death-rate, 14.5; zymotic death-rate, .9; infant death-rate per 1,000 births, 112.5; notification of infectious disease per 1,000 population, 3.2. The vital statistics for England and Wales are: Birth-rate, 29.4; death-rate, 17.6; zymotic death-rate, 2.22; infant mortality per 1,000 births, 161."

KEYNSHAM.

SEWERAGE SCHEME.—The Keynsham Rural District Council has received a letter from the Bristol Sanitary Authority to the effect that the Sanitary Committee of the Council of Bristol was preparing a scheme to divert the sewage of Bristol from the river Avon, and to discharge it into the Bristol Channel at Avonmouth. The proposed outfall sewer of the Corporation could easily be made available for the use of the inhabitants of all the areas draining into the rivers Avon and Frome, up to and including Bath; and it appeared to the Corporation that drainage by means of such a sewer would be more efficient and less costly than by systems of sewage treatment adopted independently by the several Local Authorities. The Keynsham Rural District Council was invited to discuss terms with the Bristol Corporation for the use of the proposed sewer. The Keynsham Council decided that this invitation should be accepted.

TUBERCULOSIS.—The Keynsham Board of Guardians, at a recent meeting, supported a resolution from the St. Saviour's Union, Surrey, urging the Local Government Board to make an exhaustive inquiry into the causes and treatment of tuberculosis.

MILLBROOK.

MEMORIAL TO THE LATE DR. A. B. CHEVES.—Some friends have placed a beautiful stained-glass window in the side chapel of the parish church as a memorial to the late Dr. Alexander Bruce Cheves.

NEWPORT.

WATER-WORKS.—The expenditure on the Wentwood Water-works up to the present has been £160,000, and it is estimated that the works will not be completed for another two and a half years. The original estimate was £120,000, and the contract was let for £93,000, but the Newport Corporation subsequently undertook the work themselves.

NEWQUAY.

PUBLIC HEALTH.—The report of the Medical Officer of Health indicates that sanitary matters are well attended to at this popular

seaside resort. The death-rate for 1898 was 14.7. A small epidemic of scarlet fever was promptly and efficiently dealt with, and the isolation hospital proved of great value in limiting the outbreak. In the Meteorological Report we notice the equable character of the temperature; and the fact that the lowest recorded temperature was 32.9° shows the mildness of the climate.

NEWTON ABBOT.

VACCINATION.—At the meeting of the Board of Guardians held on July 12th, the Vaccination Committee reported that the new Act had cost the Guardians during the past half-year £168 more than the old Act in the corresponding half of last year. The public vaccinators received £192 for 591 cases, as against £45 for 437 cases in the corresponding period of the preceding twelve months; the average cost of each case being 6s. 6d. against 2s. 1d. of last year. The Chairman of the Committee stated that the medical officers were dissatisfied with their fees, and he thought that the Committee would be compelled to recommend the Guardians to increase the fees from 6s. to 7s. 6d. per case.

PENARTH.

DIPHTHERIA.—The District Council have decided to convert the upper portion of the Council offices into a temporary hospital for the isolation of cases of diphtheria.

PENZANCE.

PUBLIC HEALTH.—Mr. R. D. Boase has been appointed Medical Officer by the Port Sanitary Authority.

REDRUTH.

WEST CORNWALL WOMEN'S HOSPITAL.—The children's ward recently added was formally opened by Mr. Passmore Edwards on May 17th. The ward is to commemorate the Queen's Diamond Jubilee.

SALISBURY.

INFIRMARY.—Dr. Edmund T. Fyson has been appointed Physician.

STRATTON.

PUBLIC HEALTH.—Mr. S. H. Rentzsch has been appointed Medical Officer of Health for the South District of Stratton Union.

SWANSEA.

GENERAL HOSPITAL.—The annual meeting was held on July 13th. The report for 1898 showed 1,307 in-patients had been admitted during the year. The average length of stay of each was thirty days, and the daily number of occupied beds was eighty-four. 4,636 out-patients had been treated. The financial statement showed that the ordinary ncome amounted to £4,761, being an increase of £272 as compared with 1897. The ordinary expenditure was £4,906, a decrease of £118 with the previous year. It was decided to spend £1,000 in extending the heating arrangements of the hospital. On May 18th the Mayor of Swansea (Mr. R. Martin) opened the Victoria Nurses' Home, erected in connection with the Swansea General Hospital, at a cost of £1,800, in commemoration of the Queen's Diamond Jubilee.

THORNBURY.

VACCINATION FEES.—At a meeting of the Thornbury Board of Guardians, held on May 26th, a communication was read from two of the medical officers, asking that the vaccination fees might be on a higher scale than those fixed by the Local Government Board. The majority of the Guardians were of opinion that they had acted fairly to the medical officers by fixing the fess above the minimum laid down by the Act, and as these officers had appealed to the Local Government Board, it was decided that the fees should, therefore, remain the same as suggested by the Local Government Board.

TIVERTON.

PUBLIC HEALTH.—Mr. J. R. R. Pollock has been appointed Medical Officer of Health.

SEWERAGE SCHEME.—A Local Government Board inquiry was recently held at Tiverton into the Town Council's application for sanction to borrow £6,750 for purposes of sewerage and sewage disposal. Mr. J. Siddalls described the scheme of sewerage. The district (West Axe) to be sewered contained a population of about 2,800. As the district was low-lying, it had been found necessary to divide it into two portions.

INFIRMARY.—The recent bazaar held in aid of the Tiverton Infirmary Building Fund, after paying all expenses, realised nearly £600.

TORQUAY.

SEWERAGE SCHEME. — Recently Major General Carey, Chief Engineering Inspector of the Local Government Board, presided at a Conference between Torquay Town Council and St. Marychurch District Council relative to the discharge of additional sewage by St. Marychurch into the Torquay sewers. Mr. F. S. Hex, Town Clerk, acted on behalf of Torquay Town Council, and Mr. Grant Wollen for St. Marychurch. Both Councils were strongly represented. St. Marychurch Council had prepared a new drainage scheme that will carry additional sewage into the Torquay main, and the Torquay Council protested.

TOTNES.

COTTAGE HOSPITAL.—Drs. J. L. Cuppaidge, G. J. Gibson, Mr. J. L. C. Hains, and Dr. K. R. Smith have been re-appointed Medical Officers.

TROWBRIDGE.

PREVENTION OF TUBERCULOSIS.—A small but influential meeting, under the auspices of the West Wiltshire Branch of the National Association for the Prevention of Consumption and other Forms of Tuberculosis was held on July 29th. Captain Chaloner, M.P., presided, and was supported by the Bishop of Salisbury, Dr. E. Markham Skerritt, Dr. F. R. Walters, and others. Dr. Markham Skerritt, alluding to a special report on tuberculosis presented to the Health Committee of the Bristol Town Council by Dr. Davies, said that during the last ten years the seven principal zymotic diseases caused 4,673 deaths in Bristol, while 3,520 were credited to pulmonary consumption alone, and the deaths from tuberculosis as a whole amounted to 4,876 in the same period, or more than those for the zymotic diseases put together. One death in every nine was due to some form of tuberculosis, and one in every twelve to consumption of the lungs. The Bishop of Salisbury also spoke, suggesting the Wiltshire Downs as an admirable site for a

sanatorium. On the motion of Mr. C. Awdry, seconded by Sir John Wallington, it was agreed to amalgamate Gloucestershire, Somersetshire, and Wiltshire, for the purpose of making a joint effort against tuberculosis.

TRURO.

PUBLIC HEALTH.—Mr. C. P. Mathew has been appointed Medical Officer for the Tregony Sanitary District.

TUBERCULOSIS.—At the last meeting of the Cornwall County Council it was resolved :—"That the objects of the Devon and Cornwall Branch of the National Association for the Prevention of Consumption are deserving such support as the County Council can give, and, pending the further consideration of the matter, we recommend the Council to bear the cost of publishing throughout the county information with regard to these diseases and their prevention."

WARMLEY.

PUBLIC HEALTH.—Mr. F. W. S. Stone has been appointed Medical Officer for the Bitton Sanitary Distict.

VACCINATION RETURNS.—At a meeting of the Board of Guardians held on July 18th, it was reported that the number of successful vaccinations for the half-year ending June 30th, 1898, was 106, and for the first six months of 1899 it was nearly double that amount—viz., 208.

WELLS.

PUBLIC HEALTH.—Dr. C. G. MacVicker has been appointed Medical Officer and Public Vaccinator for the Fourth Sanitary District, *vice* Dr. F. J. Malden resigned.

Congrès International de Médecine Professionelle et de Déontologie Médicale.

In connection with the Exposition Universelle in Paris, it is proposed to hold an International Medical Congress from the 23rd to the 28th of July, 1900. The members alone will have the right to take part in the discussions, and a fee of 15 francs will be required. The Editor of this *Journal* will be glad to receive the names of any persons in this district who may wish to be enrolled.

The College of Physicians of Philadelphia.

The William F. Jenks Memorial Prize of Five Hundred Dollars will be awarded to the author of the best essay on "The Various Manifestations of Lithæmia in Infancy and Childhood, with the Etiology and Treatment." The essay must be sent before January 1st, 1901, addressed to Richard C. Norris, M.D., Chairman of the Committee. Dr. James V. Ingham, the Secretary of the Trustees, will send full information concerning the conditions.

SCRAPS

PICKED UP BY THE ASSISTANT-EDITOR.

Clinical Records (28).—This conversation is said to have taken place in the out-patient department of an East-end hospital:—House-Surgeon: "Come, now, tell the officer who did it. Was it your husband?" Patient: "No, he wouldn't a done it—he's more like a friend than a husband!"

Modern Therapeutics.—*The Post-Graduate* says that those who fear that since the times of Addison and Macaulay, the age of fine writing is past, may comfort their anxious souls, by reading the following extract from a medical paper in a recent number of one of our great journals:

"*He who has watched for the past decade that jostling horde of barbaric drugs which, emerging from the sulphurous mists of the chemist's laboratory, have swept across the medical horizon in unbroken column, only to disappear in the silent caverns of oblivion, will hardly care to attack the statement that permanency is not the most obtrusive characteristic of prevailing methods of treatment.*"

Provincial Medical Schools.—Writing on the advantages of provincial medical schools, the *Medical Press and Circular* says: "Among the smaller provincial schools, Bristol, one of the oldest, has always been distinguished for the quality of its teaching. Of late years the status of the school has been materially advanced by its affiliation with the University, and the erection of handsome new buildings. Quite recently another great step has been taken to increase the facilities of students in obtaining clinical material. The Royal Infirmary, dating from ancient times, has lately joined forces with the more modern Bristol Hospital, so far as the training of students is concerned. A large surgical practice is always to be witnessed at both institutions, owing to the position of the town as a large manufacturing centre and seaport." 2B1C

Examination Papers.—The following are taken from some reported answers:—

The stomach is the most diluted portion of the elementary canal.

Hygiene is all that you can tell about that which is asked.

The doctrine of evolution began with the beginning of life, and grew higher and higher, until it regenerated into monkey. This process was slow—so slow that neither the monkey nor the man knew anything about it.

A germ is a name applied to a particular particle, tiny subbacterial organism, which, when demonstrated, causes disease.

A germ is a tiny insect sometimes found in diseases or organs—that is why diseases are contagious. It is so small that it can be seen only with a telescope. Then it appears like the head of a pin, but it goes floating around into the atmosphere.

The germ theory of diseases is continually floating around in the air, and is very dangerous, especially when the atmosphere is unwholesome.

The Experience of an Army Surgeon.—*The Doctor's Factotum* says that the following verses, dedicated to the editor of the *Medical Standard*, were read by Dr. Jay at the Phi Rho Sigma Interchapter "Smoker," at the Grand Pacific Hotel banquet-hall. Dr. Jay assures the editor that the verses contain more truth than poetry:

"Some of these dysenteric germs
Into my food had stolen,
And soon were where they love to roam—
Within a human colon.
They thought my cæcum should be red,
And this they did inflame;
They discovered my appendix,
And they colonised the same.

"They travelled through the sugar
Down in the crypts of Lieberkühn
Explored the Peyer's patches,
And more ambitious soon,
They dug in the mucosa,
Where they licked the phagocytes,
As the cowboys licked the Spaniards
Upon El Caney heights.

"Then over to my sigmoid
Some millions emigrated
And everywhere my colon
They with ulcers decorated.
They dug those ulcers deeper
Than the muco-fibrous juncture,
And every time I had the cramp
I thought it was a puncture."

Obstetrics Home and Foreign (6).—"In the Injunctions at the Visitation of Edmunde (Bonner) Bishop of London from September 3d, 1554, to October 8th, 1555, 4to., we read: 'A mydwyfe (of the diocese and jurisdiction of London) shal not use or exercise any witchecrafte, charmes, sorcerye, invocations or praiers, other than suche as be allowable and may stand with the lawes and ordinances of the Catholike Churche.'

"In the Articles to be enquired in the Visitacyon in the fyrst yeare of Queen Elizabeth, 1559, the following occurs: 'Item, whether you knowe anye that doe use charmes, sorcery, enchauntmentes, invocations, circles, witchecraftes, southsayinge, or any lyke craftes or imaginacions invented by the Devyl, and *specially in the tyme of women's travayle*.' It appears from Strype's Annals of the Reformation, i. 537, under 1567, that then midwives took an oath, inter alia, not to 'suffer any other bodies child to be set, brought, or laid before any woman delivered of child, in the place of her natural child, so far forth as I can know and understand. Also I will not use any kind of sorcery or incantation in the time of the travail of any woman.'"—Brand's *Popular Antiquities*, ed. Bohn, 1849, vol ii., p. 69.

"The *Yi* of India, the *Dye* of Syria, the herb-knowing hag of Mexico, and the midwife of the Bible are very much the same in their habits, their qualifications, and their knowledge. It is the same habitual old woman who figures in all countries and at all times, and with whose peculiar qualifications we are quite familiar. In cases where the midwife is at a loss, the aid of the medicine man is sought. The Baschkirs rely upon their 'devil-seer,' who discovers the presence of the evil spirit and drives him away if rewarded by the present of a sum of money or a fat sheep. Among others a priest is called who hastily mumbles a few verses of the Koran, spits into the patient's face, and leaves the rest to nature."—Engelmann's *Labor Among Primitive Peoples*, 1882, p. 131.

Medical Philology (XXXI.).—The *Promptorium* gives "Dyndelyñ, *Tinnio*," and the *Catholicon Anglicum* "to Dindylle. *Condolere*" or "*Errobare*."

In his note, Mr. Way points out that these are somewhat different senses, the *Catholicon* equivalent signifying "suffering acutely." He adds: "Brockett gives to dinnel, or dindle, to be affected with a pricking pain, such as arises from a blow, or is felt by exposure to the fire after frost. In the Craven dialect to dinnle has a similar signification. Langham, in the Garden of Health, 1579, recommends the juice of feverfew as a remedy for the 'eares ache, and dindling.' Dutch, tintelen, to tingle."

Mr. Herrtage in his *Catholicon* note says: "In Jamieson we find 'To dinle, dynle. (1) To tremble. (2) To make a great noise. (3) To thrill; to tingle.' 'Dinle, *s.* (1) Vibration. (2) A slight and temporary sensation of pain, similar to that caused by a stroke on the elbow.' Cotgrave gives '*Tintillant*. Tinging; ringing; tingling, *Tintoner*. To ting or towle often; to glow, tingle, dingle.' 'Hir unfortunat husband had no sooner notice given him upon his returne of these sorrowfull newes than his fingers began to nibble . . . his ears to *dindle*, his head to dozell, insomuch as his heart being scared with gelousie . . . he became as mad as a March hare.'—Stanihurst, Descrip. of Ireland in Holinshed's Chronicles (1576), vol. vi. p. 32, § 2.

> 'The birnand towris doun rollis with ane rusche,
> Quhil all the heuynnys *dynlit* with the dusche.'
> Gawin Douglas, *Eneados*, Bk. ix. p. 296, l. 35."

The *New English Dictionary* says that the derivation of the word is obscure, and that it is probably onomatopoeic. It will be seen from the references to Jamieson that it is well known as a Scottish word. Some of the quotations given above show that in some instances it had a special medical significance.

In June, 1894, I quoted from a note in Mr. Way's edition of the *Promptorium* a prescription containing feverfew, which Langham recommends as a remedy for the dindling. Feverfew has been for ages the popular name of *Pyrethrum Parthenium*, which was also called *Matricaria* because, as Turner says, "The new writers hold . . . that feverfew is better for weomen." (*Herbal*, ii. 796, quoted by the *New English Dictionary*.)